Los Angeles Public Library

SCIENCE AND INDUSTRY

Manufacturers Record

Reg. U. S. Patent Office

REFERENCE
DO NOT LOAN

CONSEQUENCE

Industry and American Labor are confronted by a serious situation.

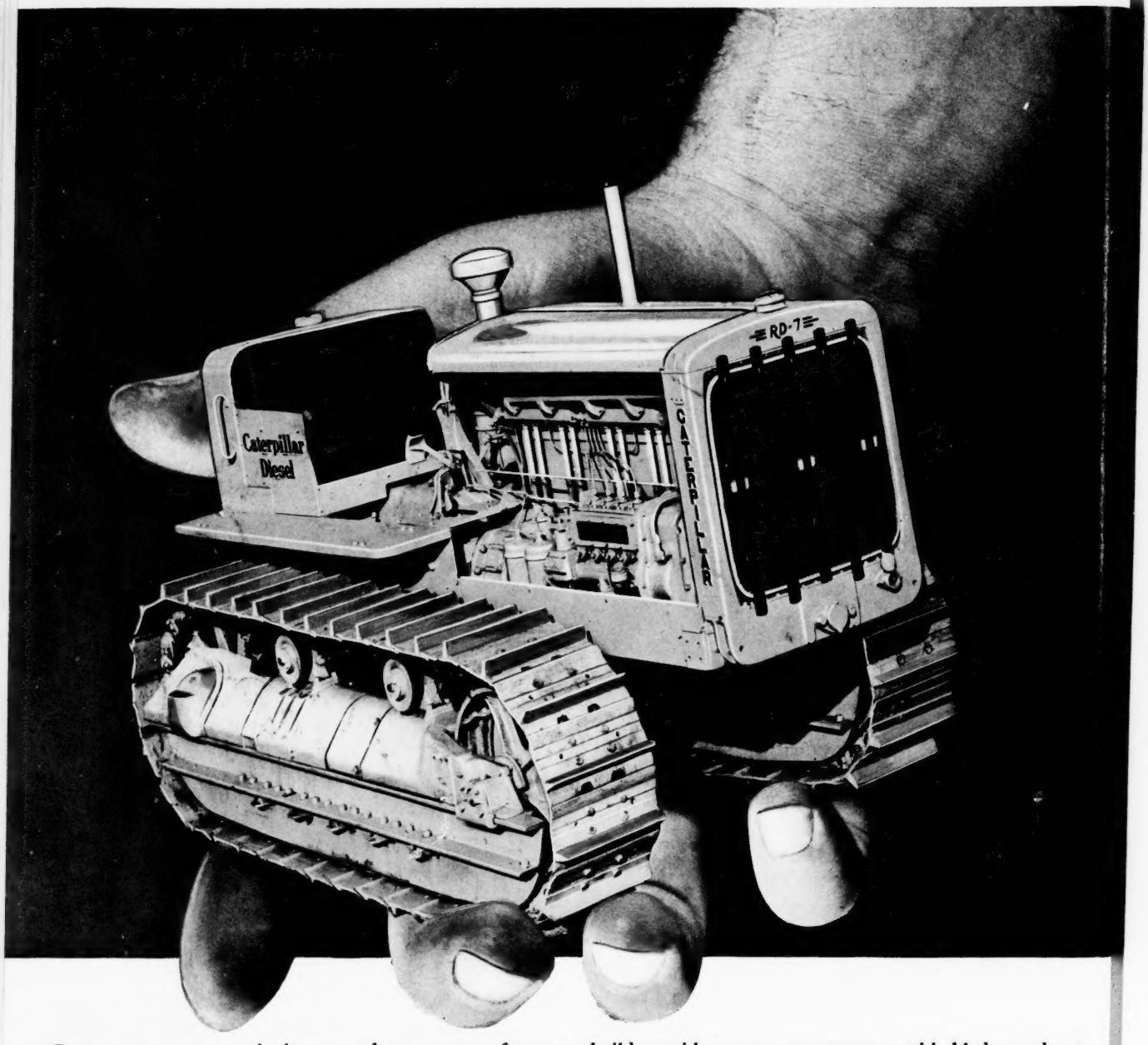
A minority, refusing to work, may occupy plants and keep out the majority which wants to work.

It is proposed to make trespassing debatable, while those who defend property rights are rebuked.

FEBRUARY, 1937

WHAT NEXT FOR PULP AND PAPER? • $100,000,000 POWER EXPENDITURES IN 1937 • SWEETPOTATO STARCH • TEST TUBE BRINGS NEW PROSPERITY • TRIANGULAR FOREIGN TRADE •

TAKE IT . . . TRY IT ON YOUR JOB!



PUT your own operator in the seat . . . keep your own figures on its operating costs . . . doing work on your own job. Here's a tractor that will do your work at the lowest possible fuel and up-keep costs!

Demonstrate it to yourself! Try it with bulldozer or trail-builder, with wagons or scrapers, with blade grader or trailer patrol. If your job requires dependable, mobile, low-cost power, get in touch with a "Caterpillar" dealer today—tell him you are ready to be shown that Diesel power will cut your operating costs.

CATERPILLAR REG. U. S. PAT. OFF.

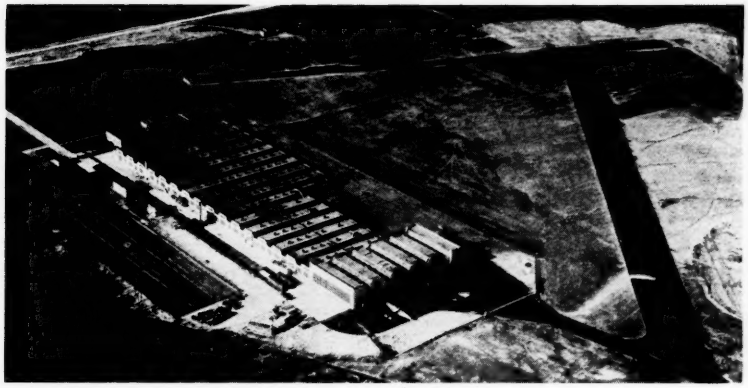
TRACTOR CO.
PEORIA, ILLINOIS

WORLD'S LARGEST MANUFACTURER OF DIESEL ENGINES, TRACK-TYPE TRACTORS AND ROAD MACHINERY

TABLE OF CONTENTS

FEBRUARY 1937

Volume CVI No. 2



Glenn L. Martin Company's Airplane Plant, Baltimore, where $2,000,000 Additions Are Being Made to Double Capacity and Give It Largest Airplane Assembly Floor in the World.

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the

MANUFACTURERS RECORD PUBLISHING CO.

Frank Gould, President

Main Office: Manufacturers Record Building, Commerce and Water Streets, Baltimore, Md. Phone: Plaza 7080-1.

Branch Offices:

New York—11 W. 42nd St. Phone: Longacre 5-7180.

Chicago—28 East Jackson Blvd., Room 1510 Phone: Harrison 5867

Cleveland, Ohio—1745 Wymore Ave. Phone: Glenville 2275

Subscription Rate: $2.00 a year (in advance). Single copies, 25c; back numbers, one to six months, 50c each; over six months, $1.00. Combination rate for Manufacturers Record and Daily Construction Bulletin, $11.00 a year.

Subscribers are asked to notify us of change in address to avoid delay in service.

PUBLISHERS DAILY CONSTRUCTION BULLETIN AND BLUE BOOK OF SOUTHERN PROGRESS

Member A.B.C.

EDITORIALS

Consequences ..... Cover Page
Taxing Enterprise 29
Seek Plant Locations in the South 30
Important Development 30
"Sign Up . . . Or Else . . ." 31

NEWS and FEATURE ARTICLES

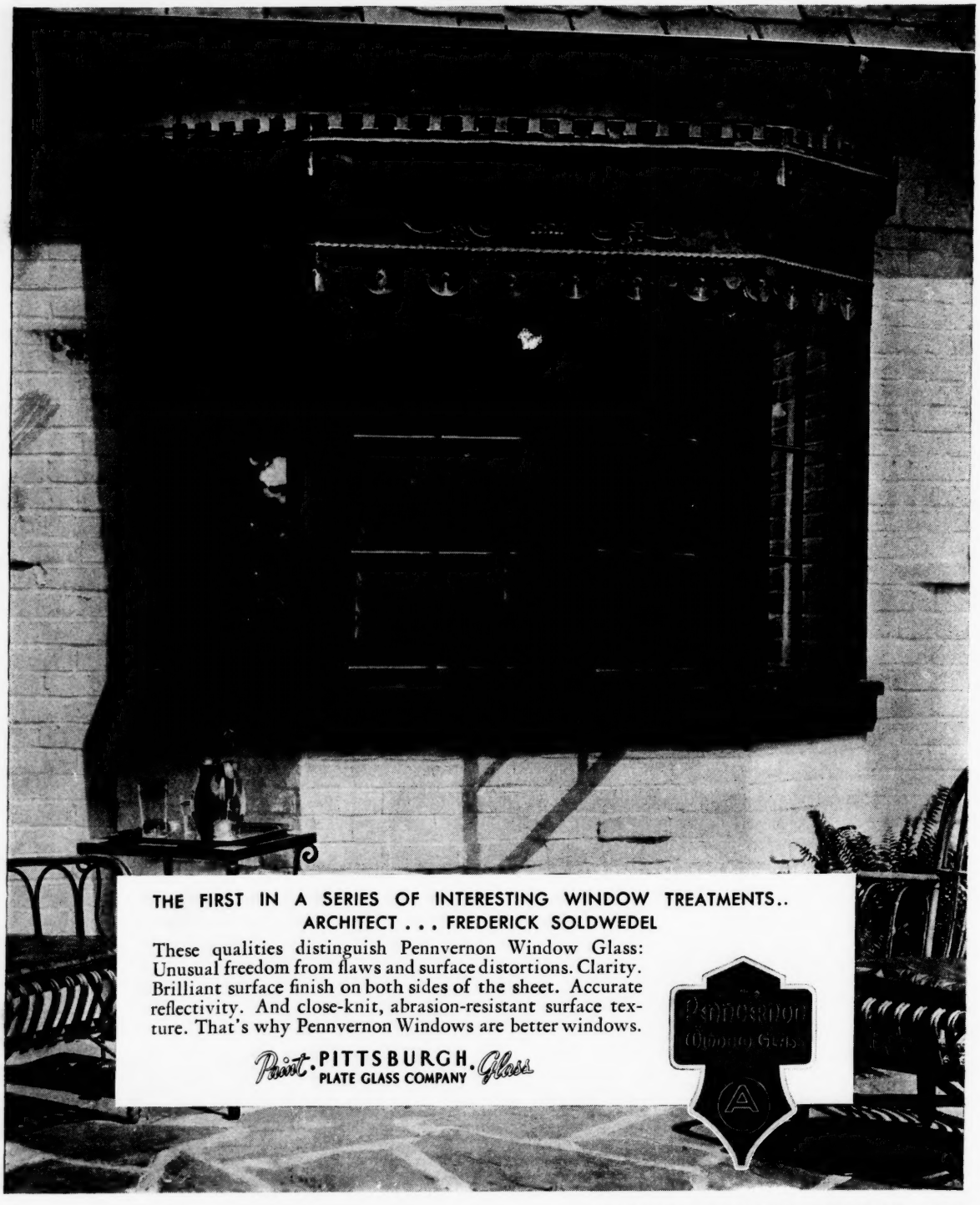
What's Next for Pulp and Paper? . . . . By Warren T. White 32
$100,000,000 Southern Power Expansion . . By Howard L. Clark 34
Envisages Added Industries in Progressive South . . . . . By L. E. Geohegan 37
Test Tube Brings New Prosperity to the South . . . . . By Langbourne M. Williams, Jr. 38
Sweetpotato Starch—A New Farm Industry for the South . . By Dr. Henry G. Knight 40
Triangular Foreign Trade—Logical Answer to the Import Question . . . . . By Donald Comer 42
Arkansas Prepares for Greater Industrial Expansion . . . . . By Nathaniel Dyke, Jr. 43
$74,000,000 Construction Awards 44
Representative Construction Projects in January 46
Preventing Stream Pollution from Abandoned Coal Mines By A. W. von Struve 64
Essentials of Effective Air Exhaust Systems . . By M. I. Dorfan 66
National Association of Manufacturers Elects Officers 66
Increased Car Loadings 66
Mineral Resources for Development 66
Financial Self-Sufficiency ..... By Claude G. Rives, Jr. 70
Equipment for the South 72

SPECIAL DEPARTMENTS

Lumber News of the Month 48
Good Roads and Motor Transport 50
Iron, Steel and Metal Markets 52
Equipment, New and Improved 54
Financial News 56
Industrial News 60
Trade Literature 62

Index for Buyers 84
Index of Advertisers 86

Use PENNVERNON *. . . not just window glass*



THE FIRST IN A SERIES OF INTERESTING WINDOW TREATMENTS..
ARCHITECT . . . FREDERICK SOLDWEDEL

These qualities distinguish Pennvernon Window Glass: Unusual freedom from flaws and surface distortions. Clarity. Brilliant surface finish on both sides of the sheet. Accurate reflectivity. And close-knit, abrasion-resistant surface texture. That's why Pennvernon Windows are better windows.

Paint. PITTSBURGH PLATE GLASS COMPANY *Glass*

• Manufacturers Record •

TAXING ENTERPRISE

THE National Economy League calls attention to the evil effects of mounting taxes imposed upon industry. The latest is to pay either a heavy tax on surplus, or distribute a large part of such surplus. What will happen when a rainy day comes is left to the future.

The capital gains tax is another mistake that should have been corrected long ago. The League points out, comparing the states of Massachusetts and Pennsylvania, that in 12 years ending in 1932, industrial plants in Massachusetts decreased 14 per cent. In 1936, a $4,000,000 tax burden in the shape of a machinery tax was abolished, and since that went into effect, 400 new enterprises have begun operation in the state, employing the idle and creating new wealth.

Pennsylvania, on the other hand, without the taxes that Massachusetts formerly had, was gaining industries. Pennsylvania levied a capital tax and a tax on net earnings, and since 1933, 500 factories have either moved or gone out of business, with a consequent loss to wage earners and the State.

The capital gains tax is a tax on enterprise, and the surplus tax not only a deterrent to enterprise, but works particular hardship upon the concerns which are able to count their surplus from the year's work not in money, but in inventory or plant.

Walter Parker, the economist of New Orleans, refers to the fact that Great Britain does not tax capital gains, because Great Britain recognizes the advantages of the free flow of investment capital as essential to development, and the expansion of profit earning business. He says:

"In the last analysis, capital gains and capital losses [in] the sense used in the provisions of the United States internal revenue law, are paper profits and paper losses. Equity values, except for special features, have a habit of rising and falling together. Consequently, a gain on one investment, which increases the capital in the number of dollars represented, when liquidated, is about absorbed in the higher cost of some new investment. Such a tax is a tax on capital rather than on profits.

"The harm done does not stop with trading in equities. It reaches into the pocket books of everyone in the United States, because it denies labor employing industry the capital it seeks."

A group of developers planned to erect apartment buildings. The land was purchased and plans drawn, and the corporation organized. When new capital was invited to take part, the tax experts called in argued against such an investment in favor of tax exempt securities. The apartment buildings were not built; labor failed to get the construction work, or the work incident to creating the material, and the home shortage was not relieved.

Tax experts, when asked by capitalists to pass upon the advisability of investments in new enterprises, are likely to give advice against selling out old investments and putting their money into new ones because of the capital gains tax.

The following resolution was adopted unanimously by the New Orleans Board of Trade last month:

"The existing scheme of taxation on capital gains tends to freeze assets that might otherwise be realized upon for investment in new and employment creating enterprise. The holder of such assets is faced with punitive taxation if he realizes. If he realizes any way, and reinvests in new enterprise the sum left after paying the tax, and the new venture prospers, he is again punished by the infliction of further taxation upon surplus accumulated for possible expansion, and upon all further realization. Obviously, this impedes industrial expansion, and especially the establishment of new enterprise which, with small capital to begin with, hopes and plans for growth. This type of enterprise is responsible for by far the greater part of American industrial development over the last half century. Had a similar system of taxation been in existence since 1890, the United States would still be a debtor, and preponderantly agricultural nation.

"The South and the Mississippi Valley need many industries to effect a proper balance with agriculture. The trend of industry, accentuated through the depression, has been toward decentralization from areas of artificial high costs, to areas of natural lower costs.

"In order that the South's and the Valley's industrial opportunities be properly utilized, and to facilitate the economic decentralization of industry, it is essential that invested capital be liquid, and that realization be not unduly handicapped or penalized.

"We therefore advocate the repeal of the capital gains and losses provisions in the Internal Revenue Act, and direct the secretary to so advise the Joint Congressional Committee on Tax Revision."

The illustration on the front cover is through the courtesy of the Bethlehem Steel Company.

SEEK PLANT LOCATIONS IN THE SOUTH

THE South is rapidly coming into its own industrially, as business recovery and the industrial decentralization movement gains momentum. This is the opinion of L. W. Robert, Jr., who, with a number of Southern business leaders, is entering into an extensive educational campaign to develop and locate industries. Almost immediately after first announcing his intention to begin such a campaign, literally scores of requests were received from interests looking to the establishment of new or branch plants in this section.

Mr. Robert, known to a host of friends as "Chip," resigned recently from the Assistant Secretaryship of the Treasury to return to the presidency of L. W. Robert & Co., of Atlanta, one of the largest engineering organizations of the South which has been identified with the building of many plants for local and nationally known interests. He will continue as the Secretary of the Democratic National Committee and expects to spend most of his time in Washington, where he retains offices as well as in New York, and company headquarters in Atlanta.

Referring to the remarkable industrial growth of the South during the depression, as reported by the MANUFACTURERS RECORD, when for each of the years 1933 and 1934 in excess of $79,000,000 were invested in manufacturing expansion, increasing to $136,000,000 in 1935 and then rapidly jumping to more than $322,000,000 in 1936, Mr. Robert asserts this is merely a forecast of what is to be expected in the near future.

The South's favorable climate, efficient and loyal labor, vast resources of raw materials for a widely diversified industry, and other advantages of adequate power and transportation, make a combination for profitable manufacture and ideal living conditions that cannot be longer ignored by interests seeking plant locations.

He cited the recently announced $53,000,000 expenditures for new steel products plants in the South, the increasing development in rayon and other textile activities, food processing, oil and gas, and chemical plants, as indicative of the substantial character of the present development trend.

The phenomenal expansion of kraft pulp mills in the South, estimated to cost $60,000,000, within the past 12 months is the forerunner of many newsprint mills and allied plants using Southern pulp and boxboard.

Investigations are now being made of manufacturing possibilities and sites, and some of the largest enterprises in the country as well as small concerns are expected to locate in the South in the next several months.

It is to be the aim of the campaign for Southern industrial development sponsored by Mr. Robert and his associates to work for sound decentralization. The South is no place for the "fly-by-night" concern, get-rich-quick promoter, or interests seeking to exploit either Southern communities or labor. Invitation is extended to legitimate enterprises and investment, in cooperation with efforts of development organizations of Southern railroads, power companies and community bodies, to investigate industrial opportunities in the Southern States.

IMPORTANT DEVELOPMENT

NOTHING in recent times has been of more importance to the South's development than the utilization of Southern pine in the manufacture of pulp and paper board products.

An interesting article appears on another page by Warren T. White, General Industrial Agent of the Seaboard Air Line Railway, in which he describes the progress made, and answers satisfactorily the question asked by some if the development so far undertaken is being overdone.

Mr. White refers to the 10 large pulp and paper mills in the South, entailing an aggregate investment of more than $60,000,000, which have been inaugurated in recent months, and Southern pine resources to supply 50,000,000 cords a year to more than meet present annual consumption of 12,000,000 cords. In recent years our imports of foreign kraft paper and pulp have run approximately 500,000 tons a year, and in addition, the demand has called upon the resources of domestic plants in the North where admittedly pulp wood is becoming depleted and manufacturing costs are higher than they are in the Southern States.

Kraft paper and board have shown enormous gains in sales. In the five years from 1931 to 1936, the consumption of unbleached kraft paper and kraft pulp in the United States increased almost 1,000,000 tons, and Mr. White adds: "in the light of these increased demands and existing market prices for kraft products, the construction now under way in the South would seem fully justified."

Another important development likely to be undertaken with increasing rapidity will be additions to these plants, and the construction of other plants for the fabrication of boxboard and containers. A comparatively small additional investment on the part of kraft mills will provide facilities for making newsprint pulp. Our importations of foreign pulp and paper average over $170,000,000 a year. The South can get the major part of this business.

The utilization of Southern pine, through Dr. Herty's efforts, goes further than all of this. He is today making white book paper of exceptional quality, and his experiments in the cellulose content of Southern pine indicate possibilities of great promise. Every encouragement should be lent to a development that means so much to the South and the country.

It is of interest to add to the information about a particular industry that 129 permanent industrial enterprises in various lines were established on Seaboard rails in 1936, besides 89 of a temporary nature, mainly in the construction field. These evidences of improvement in conditions with many additions to existing plants augur well for continued industrial and trade advancement in the territory.

Lukens Steel Company of Coatesville, Pa., is one of America's old industries. It was established in 1810. Through all the vicissitudes that life holds for an industry, as it does for an individual—war, panics, prosperity and adversity—the Lukens Steel Co. has gone on in the town of Coatesville for 127 years.

It seems to the Manufacturers Record that any business which has lived that long is entitled to respect, by virtue of its age, and the clear fact it could not have existed and occupied its place in the community and the country as it has unless it made a needed product, and had acted with fairness to those who worked for it and those who dealt with it.

It is obvious that from its wealth of experience in meeting conditions of all kinds, and particularly in its long history of employment it has reached a point where it can view a situation dispassionately and fairly. It is no doubt able, as a man of mature years does, to dismiss non-essentials.

The Manufacturers Record is glad to give this space to tell of a concern that it seems to us has summed up the situation with reference to the present attempt of a class of labor leaders to coerce workers into joining an arbitrary high-handed movement evidently designed mainly for the purpose of gaining control of industry. We count it a privilege to print the following statement, which has come to our notice. It is addressed as "A Message to Lukens employees and their families." Surely it is a timely duty for other employers to be equally outspoken.

"Sign Up.... Or Else...."

In their efforts to force steel workers into "signing up," professional labor agitators are now telling Lukens employees:

—that you must join the union to hold your job, because the outside organizers will be in control of the Lukens plant in the near future;

—that steel workers are rushing to join the union, and you had better sign up before it is too late;

—that if you do not join the union now, you will be forced to pay a large sum, such as $50.00 or $100.00, to get into the union when it is in control, so that you can work at Lukens;

—that high Government officials want you to join the union;

—that your Employees' Representation Plan does not provide a legal or effective method of collective bargaining.

Such statements are plainly attempts to frighten Lukens employees, and to make them fear for their jobs.

Do you think that the professional labor agitators would now find it necessary to threaten steel workers, to attempt to make them fear for their jobs, if the outside organizers had been successful in the past in signing up large numbers of Lukens employees by peaceful means and OF THEIR OWN FREE WILL? We believe the answer is "NO"!

Do you think that the organizers would now eliminate all initiation fees or dues as an inducement to Lukens employees to sign up, if steel workers had been "rushing to join the union" throughout the organizing drive over the past six months? Again we believe the answer is an emphatic "NO"!

DON'T BE DECEIVED BY FALSE STATEMENTS OR THREATS

Lukens employees should not be deceived by false statements or threats made by professional labor agitators.

Lukens employees need not be frightened by any statements of outsiders nor need Lukens employees fear for their jobs if they do not "sign up."

To get or hold a job at Lukens, you do not have to belong to any organization. Your right to belong, or NOT to belong, to any organization is your individual personal right. It is guaranteed by the United States Constitution, and is recognized by Lukens as a fundamental principle under your Employees' Representation Plan.

No law requires you to join a union or to surrender your right, individually or through your elected Representatives, to negotiate directly with the management on all conditions of employment. You do not have to pay dues or fees to outsiders, nor do you have to join any organization, in order to work at Lukens.

Holding your job at Lukens, or your promotion to a better job, is not dependent in any way on membership in any organization, or non-membership in any organization.

Lukens Steel Company recognizes, believes in, and has practiced true collective bargaining with its employees and their freely chosen representatives. Professional labor agitators do not like that system because it doesn't bring any money into their pockets. It is not their kind of "collective bargaining" because they can't collect anything from it in the form of dues, fines and other assessments which they would like to have Lukens employees pay to them.

Your Employees' Representation Plan DOES constitute a legal method of collective bargaining. Its effectiveness is a matter of record. Under it, you have obtained many betterments WITHOUT LOSS OF PAY, WITHOUT STRIKES, WITHOUT VIOLENCE AND WITHOUT SUFFERING TO YOU OR YOUR FAMILY.

LUKENS STEEL COMPANY
Coatesville, Pa.

WHAT'S NEXT for PULP and PAPER?

By
Warren T. White
General Industrial Agent
Seaboard Air Line Railway

THE most remarkable expansion in pulp and paper developments in the history of the industry has been made in the South in the past 16 months. As detailed in recent issues of the MANUFACTURERS RECORD, the year 1936 witnessed the inauguration of ten large pulp and paper mills in the South, entailing an aggregate investment of more than $60,000,000.

The most enthusiastic advocates for development of the pulp and paper industry in the South hardly expected such a volume of new construction in one year. It is difficult to accurately appraise the effect of these developments on the economic life of the South. It is obvious that the vast sums spent in construction of these new mills will spread into numerous channels and contribute in large measure to the rising tide of prosperity. But the results of these developments will be much more far-reaching than those reflected in construction activities alone. After the mills start operating, many millions of dollars will be disbursed annually in the purchase of wood, chemicals and other materials and in the payment of wages and transportation charges. Value will be restored to millions of acres of now idle lands, and in many other ways the entire future of large areas will be transformed by the coming of pulp and paper to the South.

New Production to Exceed 500,000 Tons a Year

Recent developments in the South have led to fear on the part of some that the industry is being overbuilt. All of the new plants projected thus far are for the production of kraft pulp and kraft products; and although it is not possible at this time to arrive at an accurate figure for the total combined capacity of all the new plants, it appears certain that the new production will exceed 500,000 tons a year. In this connection, it will be recalled that our imports of foreign kraft pulp have in recent years run to approximately 500,000 tons a year. It may be assumed that the new tonnage from the South will displace to a large extent these importations of foreign pulp, although undoubtedly a part of the new production will claim markets previously supplied by domestic plants in the North where pulpwood is becoming scarce and where manufacturing costs are high.

Increasing Demand

In considering possible markets for the projected capacity of the new plants, it is well not to lose sight of the steady encroachment made by kraft paper and board into fields previously dominated by other materials. The increased use of kraft board within the past ten years is little short of phenomenal. Moreover, this upward trend was maintained consistently through the depression years. In the five-year period from 1931 to 1936 the annual consumption of unbleached kraft paper and kraft board in the United States increased almost a million tons. In the light of these increased demands and existing market prices for kraft products, the construction now under way in the South would seem fully justified. As to the outlook for further developments in the kraft field, it is likely that there will be constructed in the near future smaller units for the purpose of supplying the requirements of individual paper mills. It is also highly probable that some of the projects now under way will be further expanded and that the production of bleached kraft will assume important proportions.

Mr. White is a recognized authority on the pulp and paper resources of the South and has made invaluable contributions toward the development of the paper industry in that area.

Establishing Fire Lanes
Ogeechee Timber Protective Organization, Savannah, Ga.

Newsprint and White Paper Next

There exists a distinct opportunity for the production in the South of sulphite pulp and paper. Attention has been previously directed to our imports of sulphite pulp, bleached and unbleached, which

amount to about 1,000,000 tons a year. This constitutes an enormous market demand, a large part of which can be supplied by the South in competition with other producing areas. The next major development in the South's pulp and paper industry will be the establishment of plants for the commercial production of sulphite pulp to be used in rayon manufacture; the making of white papers, including book, bond and magazine, and in the making of newsprint. To claim even a small part of the 3,000,000 tons which we now import annually as sulphite pulp and newsprint will require the building of many large mills in the South. Consequently, it can truly be said that the paper industry in the South is now in its infancy.

Adequate Pulpwood Supply in South

Recent developments have again brought to the fore the question of wood supply, and the fear has been expressed in some quarters that the consumption of pulpwood on such a vast scale will destroy the pine forests of the South. A brief consideration of the facts should dispel such fears. In the South there are more than 100,000,000 acres of second-growth pine lands capable of producing up to 1½ cords of wood per acre every year, depending upon the type of soil, fire control exercised, forest management, etc. With production of only one-half cord an acre each year, the South can supply 50,000,000 cords of wood annually. The total pulp and paper requirements in the United States for all purposes in terms of pulpwood are only 12,000,000 cords. From these figures can be gained some idea of the immensity of the South's pulpwood resources. It is true that there are large requirements other than pulpwood to be met from our Southern forests, but estimates of the U. S. Forest Service, which make full allowance for all other needs, indicate an abundance of wood for future use in pulp and paper.

More attention is being given than ever before to the practice of sound forestry and to the conservation of our timber resources. The U. S. Forest Service, State Foresters, timber protective organizations and individual land owners are cooperating as never before in a program of fire control and reforestation. Results are already in evidence. Timber areas under fire protection are increasing every year and with the stimulation in values being brought about through the realization of cash from the sale of pulpwood, further impetus is certain to be given this conservation movement. We are not likely to see a repetition of what happened in many sections when the sawmill operators cut the tracts of virgin pine. The pulp and paper companies themselves—those who are investing such large sums in the building of plants—are looking to the future with programs designed to insure a wood supply sufficient to protect their investments. The paper companies are not going to be caught in the error of investing millions in plant equipment only to have the wood supply run short within a few years. More than one of the companies in this area have acquired by purchase and lease many thousands of acres of pulpwood lands. Under the programs being adopted, the paper companies propose to practice a system of sound forestry, including strict fire control. The consensus generally is for operation on the "sustained yield basis" whereby the supply of wood is not only maintained but actually increased as time goes on. It is believed that the coming of these pulp mills to the South will contribute to the advancement of forestry and that the aggregate supply of timber will increase rather than decrease.

The building of pulp and paper mills in the South creates opportunities for further industrial development in the establishment of plants to convert the paper and board into the final products used by the consumer. The uses of cartons, packages, boxes, bags and other specialties made from paper are almost endless, and these uses are increasing every day. With its superior advantages for profitable manufacturing, the South seems destined to reap a rich harvest from the variety and diversity of activities which will logically follow in the wake of pulp and paper developments.

Added to the established kraft industry of the South, the new mills include: Union Bag and Paper Co., Savannah, Ga.; Crossett Lumber Co., Crossett, Ark.; Champion Paper & Fibre Co., Houston, Tex.; West Virginia Pulp & Paper Co., Charleston, S. C.; Southern Kraft Corporation, Georgetown, S. C.; Brunswick Pulp & Paper Co., Brunswick, Ga.; Chesapeake Camp Corp., Franklin, Va.; Kieckhefer Container Corp., Plymouth, N. C.; Container Corporation of America, Fernandina, Fla.; and St. Joe Paper Co., Port St. Joe, Fla.

It is believed that no less than one-half billion dollars will be invested in Southern paper mills having annual capacity of 7,500,000 tons of kraft and newsprint paper, giving employment to 300,000 men, and requiring the productive capacity of over 15,000,000 acres of land.

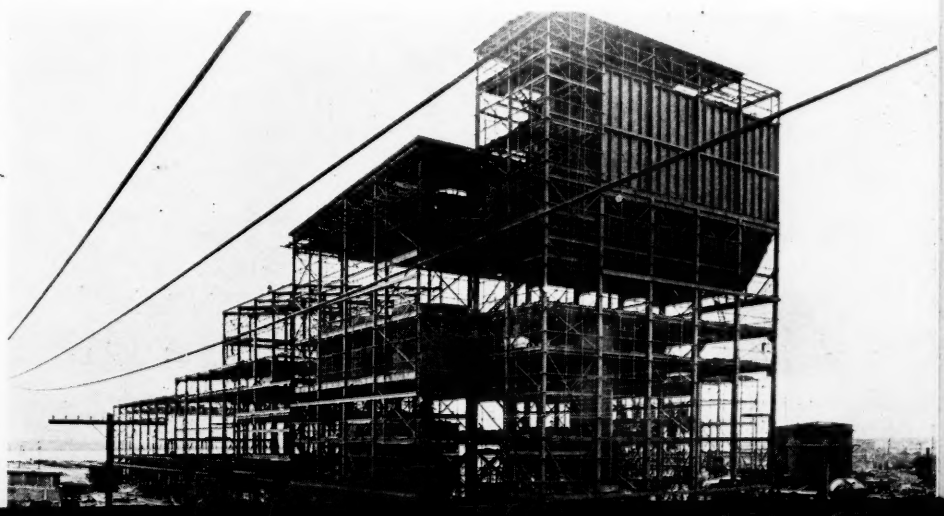
The MANUFACTURERS RECORD of October, 1935, carried an article by Mr. White entitled, "South's Increasing Prominence in Pulp and Paper," in which was set forth the fundamental advantages of the South for the expansion of the paper industry.

Based upon the logic of the economies portrayed in the article, a prediction was made that many large mills would be built in the South within the next few years. Within the past 16 months, 10 kraft pulp, paper and linerboard mills, with an ultimate investment of $60,000,000, have been established in the South. Two additional units are under way at the first mill of the group to be completed recently and work is being pushed on 9 other huge mills. Another new mill is considering an addition and at least four more mills are contemplated.

With this new capacity, the South is capable of producing over 1,500,000 tons of kraft pulp a year. It has resources for supplying 50,000,000 cords of pulpwood a year to meet our present requirements of only 12,000,000 cords.

Five Kraft mills have been established on Seaboard rails in recent months. The total number of permanent industries established in 1936 was 129 and 89 of a temporary nature, such as building and road contracting projects.

Rapid Progress Is Being Made in Constructing the West Virginia Pulp and Paper Company's Plant at Charleston, S. C.



$100,000,000 SOUTHERN POWER EXPANSION

Total Expenditures in Excess of $250,000,000 for 1937 Important Factor in Creating Employment and Trade in the South

By
Howard L. Clark

PLANT and line expansions of Southern power systems thus far estimated for 1937 will total in excess of $100,000,000. During January alone more than $25,000,000 of such projects were reported by the DAILY CONSTRUCTION BULLETIN of the MANUFACTURERS RECORD. Southern power companies will pay out during 1937 more than $250,000,000 for new construction, maintenance, operation, wages, and taxes. Increased demand for electric power with consumption at the highest rate recorded will stimulate expansion of power facilities throughout the South.

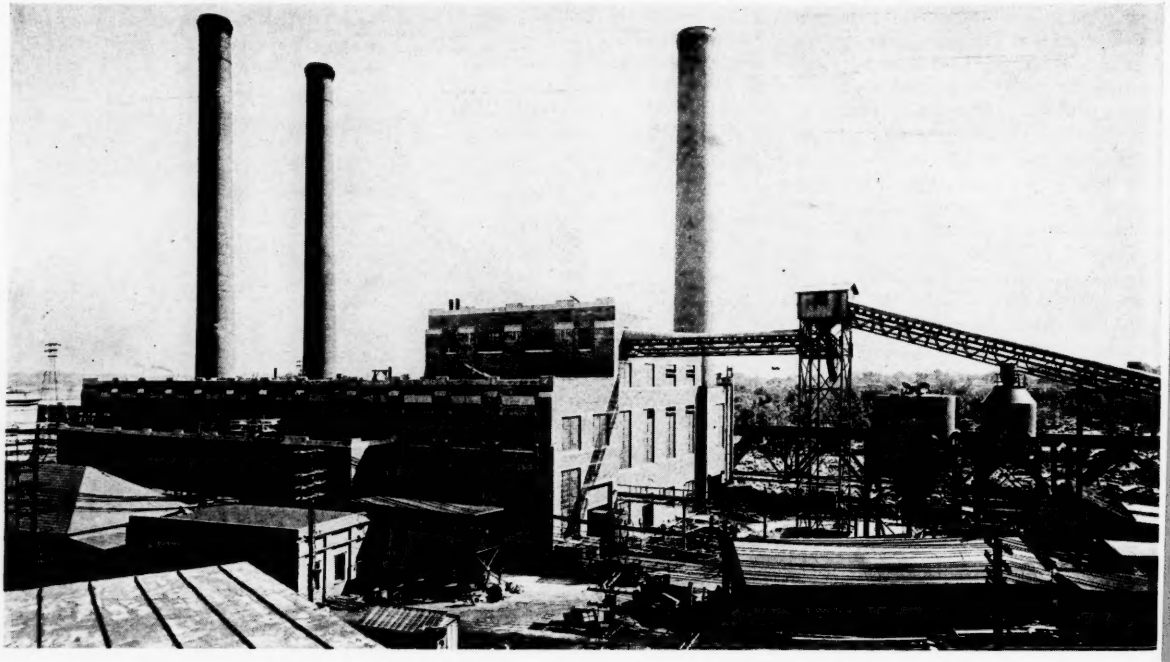
The money to be spent for improvement by many of these power companies would doubtless have been much larger "if the threat of subsidized Government competition of the TVA, which makes it difficult to raise needed capital in the open market, was removed." This is the view of Thomas H. Martin, President of the Alabama Power Company, who added—"because of this difficulty, we are being forced to trim our expenditures to the bone and spend on new construction and expansion of facilities only what is actually needed to maintain a high efficiency of service."

Projects announced in recent weeks by power companies are reported in the accompanying table of "Power Projects in the South." Budgets for 1937 development have been made by some of the companies. Two large Southern systems —Alabama Power and Georgia Power— plan to spend in 1937 more than $10,000,000 for plant and line extensions.

The Alabama Power Company's budget for 1937 indicates expenditures of more than $3,700,000 for additions and betterments which President Martin states could be easily increased to $7,000,000 or $8,000,000 but for the uncertainty of Government competition.

The Georgia Power Company, according to President P. S. Arkwright, is to expend $7,000,000 during 1937 for new construction to extend and improve service facilities. Of this amount, $1,000,000 will be spent in constructing 760 miles of new rural lines and extensions, a continuation of the 1936 program, in which 930 miles of rural lines were built. Other important additions to increase service include substations and distribution lines in a number of Georgia communities. The total operating and construction budget for 1937 of this company is in excess of $21,000,000.

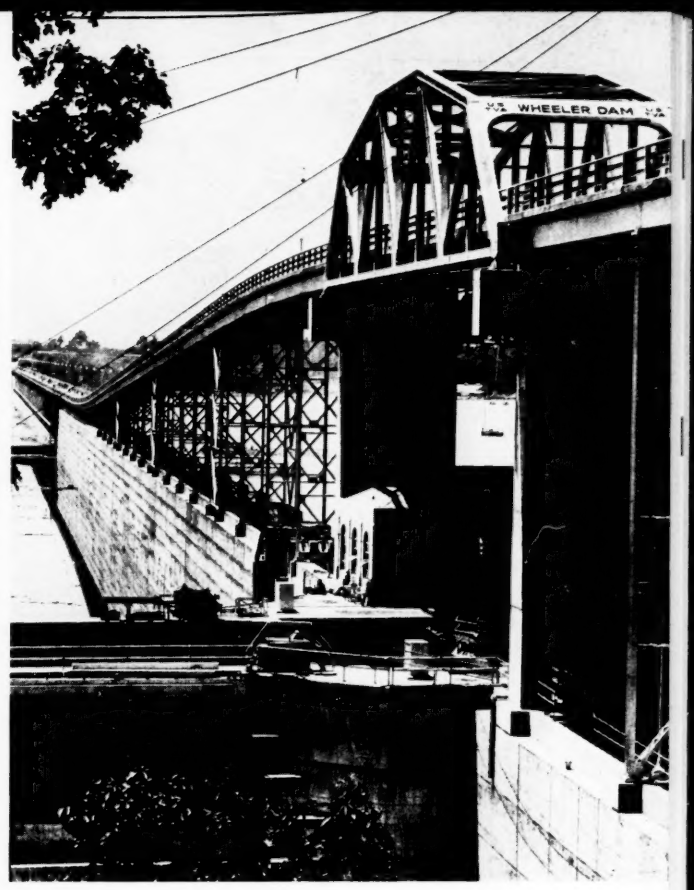
The Arkansas Power & Light Company has under way a $4,000,000 hydro-electric project on the Ouachita River and the Federal Power Commission has authorized the White River Power Company, a



Steam Power Station, Richmond, Va.
Capacity of plant has been doubled to 25,000 kilowatts

POWER PROJECTS IN THE SOUTH
(Announced during January)

Ala., Birmingham—Alabama Power Co., extensions to system	$3,700,000
Ala., Cullman—County Electric Membership Corp., build 35 miles rural line	34,000
Ark., Pine Bluff — Arkansas Power & Light Co., hydro-electric power plant improvements	4,500,000
Fla., Deland—City proposed light plant	398,000
Fla., Jacksonville—City light plant improvements	1,250,000
Ga., Atlanta—Georgia Power Co., proposed extensions 1937	7,000,000
Ky., Louisville—Louisville Gas & Electric Co., generating station	1,800,000
Ky., Maysville—Kentucky Power & Light Co., proposed generating equipment	100,000
Md., Baltimore — Consolidated Gas Electric Light & Power Co., substation and line extensions	5,565,547
Md., Leonardtown — Maryland Light & Power Co., Salisbury, construct high tension line	150,000
Mo., Springfield—Springfield Gas & Electric Co., plans addition to power plant	600,000
N. C., Charlotte—Duke Power Co., generating plant addition	3,000,000
N. C., High Point—Proposed hydro-electric development	6,000,000
N. C., Lenoir — Miller Electric Co., Jacksonville, Fla., awarded contract 300 miles rural lines	370,000
Okla., Oklahoma City—Oklahoma Gas & Electric Co., has 5-year $12,000,000 expansion program, including approximate expenditure in 1937 for power plant	2,500,000
Tenn., Brownsville—Southwest Tennessee Elec. Membership Corp., rural line	290,000
Tenn., Linden — Tennessee Electric Power Co., distribution extensions	27,000
Tenn., Memphis—Memphis Power & Light Co., proposed rural lines	1,500,000
Tenn., Memphis—Municipal electric distribution system	290,000
Tex., Bartlett—Belfast Power & Light Co., light plant	252,000
Tex., Bay City—City proposed generating station	225,000
Tex., Brenham—City voted bonds for power plant	190,000
Tex., Pecos—Red Bluff Water Power District, extensions	42,450
Tex., San Antonio—San Antonio Public Service Co., plans extensions	1,400,000
Va., Danville—FEA of Public Works, approved insulator contract to Locke Insulator Corp., Baltimore	16,725
W. Va., Keyser—West Virginia Project rural lines	170,000
W. Va., Riverville—Monongahela-West Penn Public Service Co., Fairmont power plant extension	2,500,000



Wheeler Dam on Tennessee River
Completed in 1936 with initial installation of 90,000 horsepower. Possible installation 360,000 horsepower.

subsidiary of the Arkansas Power & Light Company, to construct a hydro-electric plant of 38,000 horsepower at Wild Cat Bend on the White River in Arkansas.

The Duke Power Company is at work on its 75,000 horsepower addition to the River Bend, N. C., steam-electric plant to cost $3,000,000.

Seventeen Southern power companies reporting to the MANUFACTURERS RECORD show proposed capital expenditures for additions and betterment in 1937 in excess of $25,000,000 and expected expenditures for operations and maintenance of over $58,000,000. The grand total is in excess of $84,000,000. They paid out in wages last year more than $33,000,000 and their accrued taxes were $17,788,000. In other words, the tax bill of these 17 power companies, and each paid an average of 17 different taxes, the highest reporting 33 taxes and the lowest 9, amounts to 52 per cent of the wages and salaries paid in 1936. The high taxes cut down the income of stockholders and add to the power bills of consumers.

These 17 power companies have a total generating capacity of 2,209,772 kilowatts, operate 45,685 miles of lines and serve more than 1,204,000 customers. Their merchandise sales in 1936 was over $9,652,000. They expect to spend in 1937 more than $4,915,000 for coal, $1,350,000 for oil and $1,666,000 for gas for steam generating purposes.

The major purchases of the 17 companies include power lines, machinery and equipment; boilers, turbines, generators, transmission lines, towers, cross arms, insulators, transformers, pumps, stokers, conveyors; structural steel, lumber, brick, cement, paint; automobiles and trucks.

TVA Accomplishments

At the present time, the TVA has completed two dams—Norris, with an initial installation of 132,000 horsepower, costing $36,600,000, and Wheeler, with 90,000 horsepower, costing $33,800,000. Construction is more than half advanced on the Pickwick Landing dam, with an initial 90,000 horsepower installation to cost $32,529,000. Work has been started on the Guntersville project, of 120,000 horsepower to cost $29,500,000; Chickamauga project of 230,000 horsepower, to cost $31,600,000, and the Fowler Bend dam, Hiwassee River, estimated to cost $15,250,000. TVA is now operating Wilson dam built by the War Department at the cost of approximately $49,400,000 and has an initial installation of 261,400 horsepower. The estimated cost of these projects, excepting the Wilson dam which was completed before TVA started operations, is $185,180,000, of which approximately $86,000,000 has been expended for the fiscal year 1937 and the remainder to be spent by 1940.

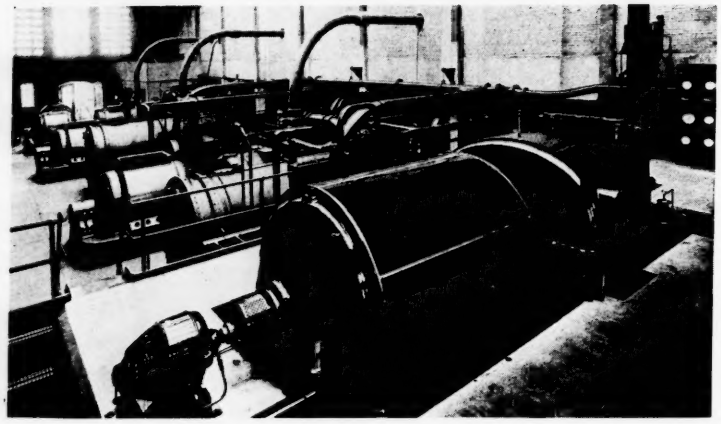
TVA, Knoxville, Tenn., proposes in the fiscal year 1938 to expend for construction, land payments and other purposes, $17,043,620 at Guntersville Dam; $8,423,123 at Pickwick Landing Dam; $192,092 at Wilson Dam plus $25,000 for rehabilitation at Muscle Shoals; $410,924 at Wheeler Dam; $9,758,338 at Chickamauga Dam; $3,842,714 at Hiwassee Dam; $300,685 at Norris Dam; $1,203,782 in exploring for other future main river dams; $190,959 for explorations on other tributary dams; $4,700,000 for additional transmission lines; $300,000 for investment in distribution properties; $100,000 for general electric equipment; $297,240 for water control investigations aside from those at dam sites; $271,250 for electricity research and development; $544,283 for mapping; $3,606,600 for fertilizer production and experiments, and for reforestation, soil erosion control, etc.; $225,734 for national defense program; $357,242 for land planning projects and other regional studies, experiments and demonstrations and $50,000 for general equipment. No new dams are to be started, but $739,243 is to be expended in investigating the proposed Gilbertsville, (Ky.) dam site on the lower river; $240,085 for investigations at the pro-

Expenditures 17 Southern Power Companies for 1937

Estimated gross capital expenditures for additions and betterments	$25,722,975
For maintenanace and operation	58,471,798
Total estimated expenditures	$84,194,773
Taxes accrued 1936	$17,788,950
Wages and salaries, 1936	$33,856,861

INSTALLED CAPACITY AND SERVICE
(Reported by 17 Southern Power Companies)

Hydro-electric plants, kw.	889,951
Steam generation plants, kw.	1,270,366
Internal combustion engines, kw.	49,455
Total, kw.	2,209,772
Miles of line	45,685
Number of customers	1,204,755
Merchandise for resale	$9,652,000



Improvement at Savannah, Ga. Steam Electric Plant.

posed Watts Bar Dam above Chattanooga; $244,454 for investigating at the proposed Coulter Shoals Dam in the upper river; and $190,595 for studies of future dams proposed on tributaries.

Recommended Dam Construction by the TVA on the Tennessee River System

Project—Type of Dam	Estimated Cost
Gilbertsville Dam—Concrete and Earth Fill	$60,000,000
Raising Wilson Dam and Lock and Dam No. 1—Concrete or Steel Flashboards	500,000
Raising Hales Bar pool and Dredging—Concrete	4,000,000
Watts Bar Dam—Concrete and Earth Fill	31,000,000
Coulter Shoals Dam—Concrete and Earth Fill	20,000,000
Fontana Dam—Concrete	29,000,000

One of the outstanding power plant construction jobs in 1936, was the extension of the Twelfth Street Power Station at Richmond by the Virginia Electric & Power Company. The building has a concrete substructure, a steel frame with brick walls, concrete slab roof and steel sash to conform to the present building. The new unit has a capacity of 12,500 kilowatts, giving a total of 25,000 kilowatts for the entire station. Indicating the scope of the equipment required for a project of this character, the new extension houses the following major items:

One pulverized coal-fired boiler and superheater having a maximum capacity of 450,000 lb. of steam per hour at 860 lb. gage pressure.

Two Ljungstrom air preheaters, each having 16,100 sq. ft. of heating surface.

Two pulverized coal mills with individual feeders, each unit capable of pulverizing 26,000 lb. of coal per hour.

Boiler setting comprising water walls on four sides and bottom of the furnace, complete with insulation and casing.

Two sets of motor-driven forced and induced draft fans, each set consisting of an induced draft fan with 155,000 c.f.m. capacity and a forced draft fan with 78,000 c.f.m. capacity, mounted on the same shaft and driven by one 700 h. p. variable speed drive motor.

Complete set of steel plate duct work and connections from boiler to fans and to base of stack; also from forced draft fan to burner wind box.

One superimposed radial brick stack on roof of building. The stack is 14 ft. inside diameter and 150 ft. high above the roof. It will be capable of also handling the gases from a second boiler of the same capacity.

One Cottrell electrostatic fly ash precipitator, consisting of three units, two having 15 ducts and one having 12 ducts arranged for horizontal flow to remove suspended matter from the flue gases.

One deaerating feed water heater, replacing old heaters in present station, with a capacity of 600,000 lb. of water per hour.

One 500,000 lb. per hour high pressure contact feed water heater.

Four 350,000 lb. per hour high pressure boiler feed pumps. Two pumps are arranged for motor drive by 500 h.p. motors and two arranged for turbine drive by 550 h. p. turbines with 200 lb. gage back pressure.

One 12,500 kw. high pressure turbine generator, utilizing steam from the new boiler at full pressure and exhausting at 200 lb. gage pressure for use in the condensing turbine generator units in the present station.

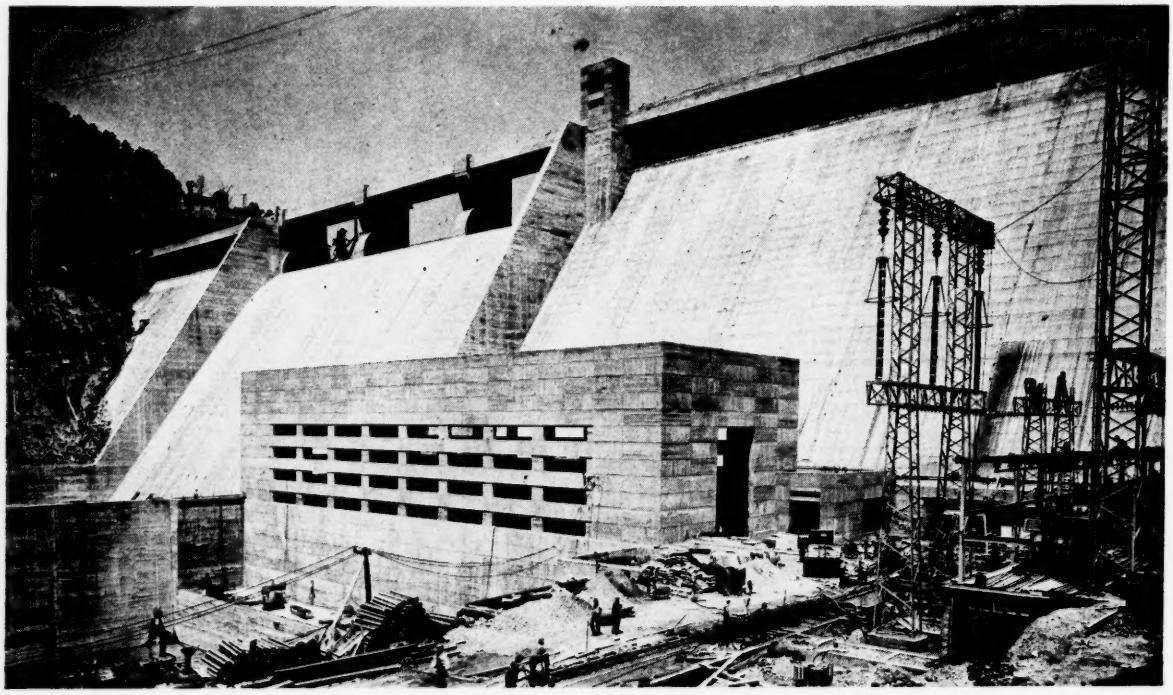
Complete system of high pressure-low pressure steam and water and related piping in conjunction with the station extension.

Necessary complement of switch gear, station service transformers, wiring and other electrical equipment for serving the various electrical facilities installed.

One 50-ton, 4-motor traveling crane.

A new system of unloading, elevating, conveying and crushing equipment for handling coal from incoming railroad car shipments and for fueling new station

(*Continued on page* 68)



Norris Dam and Power House

On Clinch River in Tennessee completed in 1936 with initial installation of 132,000 horse power.

ENVISAGES ADDED INDUSTRIES IN PROGRESSIVE SOUTH

By

L. E. Geohegan

Vice-President and General Manager,
Gulf States Steel Company

ENLARGEMENT of iron and steel activities in Alabama are in keeping with an increased activity in the construction and operation of many industries throughout the Southeast.

While the early development of the Birmingham District dates back to the mining of the first coal in Jefferson County in the year 1827, when the coal was extracted from the bottom of a creek and floated down the Warrior and Tombigbee Rivers to Mobile, Alabama, to be used as fuel instead of wood, it was not until the year 1876 that the first coal was coked for use in smelting ore. The first pig iron was made in the years of 1861 to 1863 and steel was first produced in a small experimental open hearth furnace at North Birmingham in 1888.

The real development in the production of steel came in 1897 when the now present Ensley open hearth furnaces were built. These were only the steel making units up to 1906, at which time six small open hearth furnaces were constructed and put in operation at Gadsden. The steel produced at Gadsden was used exclusively in the manufacture of wire, nails, barb wire and fencing.

During the early days of the Birmingham District, there were several sources of supply of bars and light shapes produced from puddled and faggot iron which attracted to the district several fabricators. Later, as the fabricators expanded, the steel producers in Birmingham built units for producing material needed by them, and the mills, producing by the expensive method of puddled and faggot iron, passed into the discard.

The progress of industry was somewhat retarded in Alabama, with only one source of supply up to about 1937, at which time expansion was made in the production of bars and light shapes on a comparatively large scale to which was added in the first year of the depression mills producing plates and sheets. This development was the first to insure consumers and fabricators of a competitive and adequate supply of the commodities that they might need in the fabrication and expansion of their products.

Mr. Geohegan, as Vice President and General Manager of the Gulf States Steel Company, the largest independent steel company in the South, with a plant running at capacity and employing over 3,500 men at Gadsden, Ala., can speak with authority on the trend of the times concerning all industrial development in that area, and envisages increased activity throughout the South.

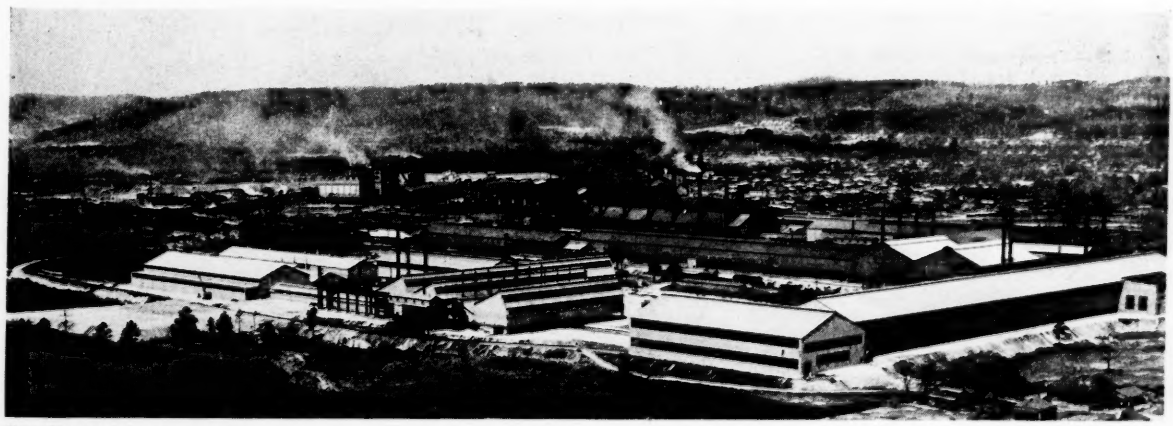
With the enlargement of the operating facilities of the Gulf States Steel Company and other companies located in the Birmingham District, there is being undertaken a program to attract to the Southeast industries not only for the fabrication of steel products but others for the conversion of raw materials of the Southern farms, forests and mines into finished goods.

With the passing of the depression of the past six years, industry, which depends upon these commodities, is assured of an ample supply from separate sources with ideal climatic conditions for work through the entire twelve months of the year; cheap fuel, economically reasonable rates on power and ample transportation facilities reaching into all sections of the South. Plant sites at reasonable rates, a constant and adequate supply of efficient and loyal labor, a growing market with the development of other industries, such as the chemical, paper, pulp, etc., are available. With industry unable to resist the natural advantages of locating in the territory adjacent to their supply of materials, we may look forward, with confidence, to the expanding of industry in the State of Alabama, and the South.

Recent years developed the necessity for industry moving from thickly populated territories, where costs of production are high and transportation charges are a serious item, into the field where development is in progress and these disadvantages do not exist. Previously all industry has been forced to locate in territories adjacent to adequate reliable fuel transportation facilities. The recent developments of pipe lines for transportation of natural gas, and the power lines leading from the hydro-electric and stream-electric stations have opened to industry the opportunity of locating in territories where property values are reasonable and labor enjoys the natural advantages of a rural community.

With the advent of these and the building of good roads it has permitted other transportation expansion which enables manufacturers to take advantage of the territories in the foothills that previously could not be utilized due to the difficulties and expense of building adequate

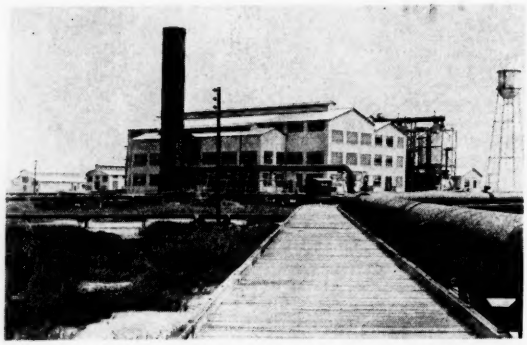
(Continued on page 74)



Gulf States Steel Co., Gadsden, Ala.

Photo Fairchild Aerial Surveys, Inc.

TEST TUBE BRINGS NEW PROSPERITY TO THE SOUTH



$4,000,000 plant of the Freeport Sulphur Co. at Grande Ecaille, center of operations in Louisiana. The plant is built on a forest of piling in the Mississippi Delta region.

From the Chemist's Beaker Has Come a New Alliance Between Agriculture and Industry Which Presages an Era of Great Progress

By

Langbourne M. Williams, Jr.

President, Freeport Sulphur Company

THE South today stands on the threshold of an age of industrial and social progress which I believe is destined to have a far-reaching effect not only on its 44,000,000 people but on the economic future of millions of others who depend for their livelihood on industrial activity in the heavily populated centers of the North.

Not since the days of Eli Whitney and the cotton gin has the future seemed so bright. But, strangely enough, the developments now taking place which are destined to bring a new wealth and prosperity to the South through large scale industrialization have not come from new discoveries of vast deposits of natural resources such as coal, oil, gas, sulphur, iron ore or other minerals, but from the laboratories of the physicist, the beakers and test tubes of the chemist.

New Industrial Uses for Farm Products

The problem of correlating the agricultural South with the industrial South is gradually being solved by finding new industrial uses for products of the farm. Reports from practically every section of the South indicate that this new affiliation between the crops produced by Southern farmers and industry is stimulating business, giving employment to thousands of people and bringing a vast new wealth to this area. Foremost in this field has been the recent expansion of paper and pulp manufacturing plants, representing an investment of $60,000,000, to utilize Southern slash pine and other natural resources.

The rapid growth of the tung oil industry which supplies ingredients essential to the manufacture of paints, varnishes, linoleums, oilcloth, printing inks, electrical goods and many other items is an excellent example of how new industries based on the South's agricultural products are growing. This year the tung nut industry of Alabama, Mississippi, Louisiana, Florida, Georgia and Texas will produce 2,000,000 pounds of oil according to Department of Commerce figures.

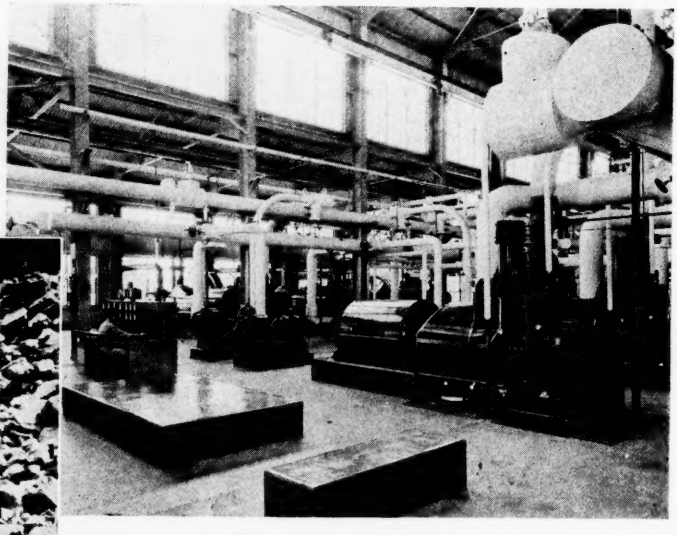
Organic chemistry is paving the way for a new Southern prosperity through the utilization by industry of many agricultural products and natural resources found exclusively in this area. At a recent meeting of the Farm Chemurgic Council scientists envisioned the waste products of Louisiana's rice fields used in the manufacture of artificial silks, lacquers, waterproof coatings for airplanes, safety glass and countless other items. It is said the conversion of rice hulls and straw into pure cellulose will make possible the manufacture of many products. By the use of new processes involving sulphuric acid—easily obtainable at low cost from the sulphur deposits of Texas and Louisiana—the cellulose can be converted to dextrine and glucose.

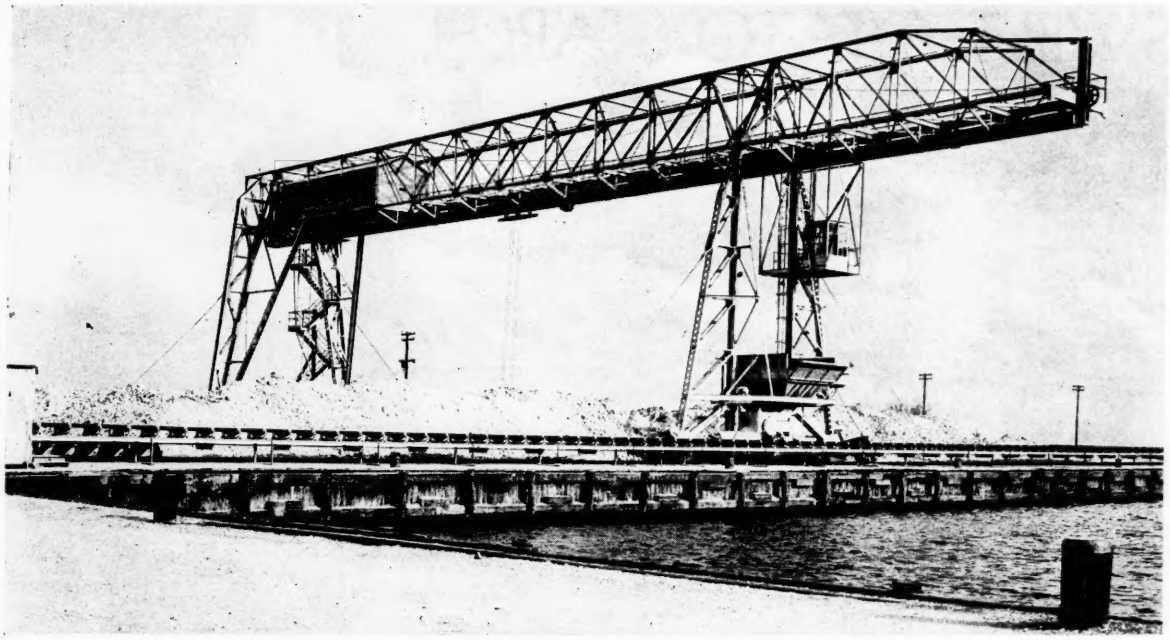
It is reported that cotton, corn, peanuts and soy beans are furnishing an ever increasing source of supply for fats and oils which are essential, not alone to foodstuffs, but also in the manufacture of such items as linoleum, paints, printer's ink, glycerine and other industrial products. One of the somewhat unusual uses to which such products have been adapted is exemplified by the purchase of hundreds of thousands of pounds of cotton seed oil products to be used as reagents in flotation concentration of manganese ores at the Cuban-American Manganese Corporation's plant near Santiago de Cuba.

Inquiry into ways and means of broadening the cotton market during the past few years has resulted in the discovery that cotton can be used for road-

Right—Power plant at company's mine, Grande Ecaille, La.

Below—Steam melted sulphur is pumped out of underground deposits in Texas and Louisiana into vast storage vats where it solidifies again. It is then broken into chunks and loaded aboard trains for shipment to the consumer.





Part of Sulphur Loading Equipment of Freeport Sulphur Co., at Port Sulphur, La.

building, insulating materials, roofing felt, wall paper, acoustical wall treatments, shingles, pipe coverings, boxes and many other items.

From the pulp of sugar cane, chemists have developed a feed for livestock and it has been discovered that sugar cane bagasse can be converted into an excellent soil fertilizer.

Sulphur's Part in Chemurgic Development

We, in the sulphur industry, are vitally interested in this movement, for sulphur is an important ingredient used in the manufacture of hundreds of products. As diverse manufacturing plants spring up in the South it is certain that American consumption of sulphur for industrial purposes will be greatly increased. America's greatest sulphur-producing region lies wholly on the Gulf Coast delta lands of Louisiana and Texas. From this area comes approximately one-fourth of the total world's supply.

In the past two years the sulphur industry has been faced with increased competition from foreign producers who, in many instances, have received help in the form of high tariffs and direct subsidies from their governments. An increase in severance taxes in the sulphur-producing States has also been a barrier to progress. However, there is a growing realization in the South that exorbitant and excessive taxes tend to defeat their true purpose by driving away capital, preventing the expansion of industry and in general retarding prosperity. It is believed this feeling presages an era of better understanding between government and industry which will make for rapid development and expansion of industrial enterprises within this area.

In addition to carrying on our usual research furthering the use of sulphur in industry, we have undertaken a comprehensive program in behalf of the farmer, cooperating with State agricultural colleges, experiment stations and other groups. Already the results of this activity have been demonstrated.

For example, the Texas State Experiment Station at College Station, Texas, and the United States Department of Agriculture have discovered that the cotton flea hopper, one of the most pernicious of insect pests can be definitely controlled by dusting cotton plants with sulphur. Using this treatment the yield has been increased in several areas as much as 350 pounds of seed cotton per acre and has provided a net gain to the farmer of as much as $10 an acre.

New Fields of Activity

One of the new fields of activity which offers an exceptional opportunity to Southern business men and requires a modest outlay of capital is the establishment of cotton seed delinting stations. Research experts, after long experiment, have discovered that cotton seed delinted with sulphuric acid is easier to plant, germinates more rapidly and produces stronger, healthier plants. This sulphuric acid bath eliminates the necessity for chopping, one of the most expensive operations in cotton production. Cotton seed delinting stations have already been established in several States in the South and as knowledge of the success of this treatment expands it seems probable that cotton farmers universally will plant delinted seed. The cost of erecting a cotton seed delinting station is in the neighborhood of $5,000. With proper management a return on the initial investment should be possible the first year.

The ties of alliance between the sulphur industry and the agriculturist are being strengthened in many ways. Farmers who grow barley, oats, rye and wheat have discovered that fields sprayed with sulphuric acid kill devastating weeds such as ragweed, mustard, wild radish and Russian thistle. The sulphuric acid kills the broad-leafed weeds but leaves the crop unharmed and free to flourish without weed competition. Scientific reports reveal that grain fields so sprayed have shown an increased yield of from 50 to 80 per cent.

Most of this grain spraying activity has been carried on by the individual grain growers in cooperation in some instances with state agricultural colleges. However, here again is an opportunity for the organization of a new business enterprise which can undertake the spraying for individual farms at a nominal cost per acre.

In the field of poultry raising, agricultural bulletins indicate the farmer has found that sulphur is a respected friend. While it has been used in the control of mites, lice and chiggers for many years it is only recently that scientists have learned sulphur is of value in the control of coccidiosis, a parasitic disease which affects the alimentary canals of chickens causing great loss.

Sulphur is also a cheap and effective fungicide and its increased use by agriculture is certain to make for a wide expansion of existing sulphur markets. It is continuing to prove its value to orchardists, citrus growers and horticulturists for it effectively rids trees and plants from devastating parasites.

It is evident to those of us engaged in the sulphur business that we have much in common with the farmer. We must consider his problems as our problems and constantly strive through scientific research to further ease his burden and add to his profits. It is this growing alliance between agriculture and industry and this new spirit of fine cooperation on the part of all industry which I believe will lead the South to a new economic and industrial independence.

Undoubtedly we are witnessing a new type of industrial revolution in an area which comprises almost one-third of the United States—a revolution which has been conceived in the laboratory test tube and will be nurtured by men of scientific mind for years to come.

SWEETPOTATO STARCH

A New Farm Industry for the South

By Henry G. Knight,
Chief, United States Bureau of Chemistry and Soils

The cloth in Dr. Knight's right hand was sized with sweetpotato starch, that in his left, with regular commercial starch. There is no difference in appearance.

ONE of the newest industries in the South is the production of sweetpotato starch. Chemists have found that sweetpotatoes not only contain enough starch to make it profitable to process them, but that the starch is of such a high quality that it can be used in cottonmills, adhesive factories, commercial laundries, and indirectly in the manufacture of postage stamps. And judging from the success the initial plant at Laurel, Miss., has had in manufacturing this new starch in the last 3 years it is reasonable to assume that the lowly sweetpotato is on the eve of a greater future—a future that will help Southern industry as well as Southern agriculture.

Uses of Starch

Starch has been used in homes for centuries. One of the biggest uses of starch is for sizing warp yarns in textile mills. Starch is used also in the manufacture of adhesives; in home and commercial laundries; in making tapioca pudding, vegetable glue, dextrin, candy, and many other things.

New Sweetpotato Starch Plant, Laurel, Miss. The only one in the United States—Sweetpotato hotbeds in foreground.

Sources of Starch

The United States consumes about 800,000,000 pounds of cereal starch and about 250,000,000 pounds of root starch a year. Millions of bushels of corn, and wheat, and rice are used in the manufacture of cereal starch most of which is made in this country. With the exception of a comparatively small amount of Irish potato starch made in Maine the bulk of the imported starch comes from cassava, a tropical plant that is not produced commercially in the United States. So in developing a sweetpotato starch industry we are merely trying to develop a new market for something for which we already have the raw material. It is not the object of the sweetpotato starch industry that is getting under way to displace the cereal starch industry. The goal is to develop a sweetpotato starch industry that will help the farmers of the South just as the corn starch industry helps the farmers of the Middle West.

Sweetpotato Starch

Japan has been making sweetpotato starch for a great many years. It makes about 40,000,000 pounds a year, but as little effort is made to remove the natural yellow color the sale of the Japanese starch is greatly restricted because the starch market prefers white starch. The first sweetpotato starch plant in this country was erected near Thibodaux, La., in 1928. But Irish potato starch machinery was used and as there was no known method for eliminating the "off color" this pioneer attempt failed and the plant dismantled.

It was at this point that the chemist entered the picture. The Bureau of Chemistry and Soils started investigations to try to eliminate the natural yellow color in sweetpotato starch, and the original idea was to use culls, cuts, and other unmarketable potatoes. As a result of continued research, chemists succeeded in solving the color problem, and the starch that is being made at the new plant not only has a beautiful white

The United States consumes more than 1,000,000,000 pounds of starch a year. We import approximately 250,000,000 pounds a year which represents the productive capacity of some 300,000 acres.

Sweetpotato starch can now be made in this country to supplement our cereal starch industry.

The South not only has the raw material for starch plants, but a big portion of the cotton mills that are one of the heaviest users of starch.

Here is an opportunity for Southern farmers to get cash from another source, an opportunity for capital to invest, and an opportunity for the South to get an agricultural industry that will mean more business in other sections of the country.

Similar plants to the first commercial starch factory at Laurel, Miss., which can produce 2,000,000 pounds of starch in a 100-day season with 52 men working three 8 hour shifts can be built at a cost of between $75,000 and $100,000. It will require 150 plants the size of the one at Laurel to make as much starch as we are now importing.

color, but is of an unusually high quality.

This new and successful process for making high-quality white starch from cull sweetpotatoes came to the attention of the Federal Emergency Relief Administration during the spring of 1934 when it was searching for an agricultural industry that would help the people of the Coastal Plains section of south Mississippi. The Administration was favorably impressed with the possibilities of this new project and allotted $150,000 for the construction, equipping, and operation of a plant that would not only provide emergency relief work, but a market for the sweetpotatoes the farmers of that section would produce, and a plant where methods and equipment could be perfected on a commercial scale. The factory was located in an abandoned sawmill plant at Laurel, Miss., and operated for the first time in the fall of 1934.

Accomplishments

The Laurel plant, which has a capacity of 200,000 bushels of sweetpotatoes and 2,000,000 pounds of starch per 100-day season, has been deeded to the Mississippi Agricultural Experiment Station and leased to a self-help cooperative organization of farmers, at least 51 per cent of whom are being rehabilitated. The chemical and technological direction of the plant is under the Bureau of Chemistry and Soils while operation is under a plant manager employed by the association. Here are the results of the 3 season's operations:

1934 production 140,000 pounds of starch.
1935 production 250,000 pounds of starch.
1936 production 420,000 pounds of starch.

The cost of manufacturing the starch including the cost of the raw material was, roughly:

1934 ..... 13 cents a pound
1935 ..... 10 cents a pound
1936 ..... 3 cents a pound

The total cost of producing a pound of sweetpotato starch during the 1936 season was divided as follows: 1 cent for manufacturing, and 2 cents for the potatoes, or raw material. On that basis the plant can pay farmers at least 20 cents a bushel for either culls or field-run potatoes and compete with the white potato starch that is imported. It is more difficult to compete with imported cassava starch because it is produced at such a low cost. But if increased yields of potatoes with a higher starch content can lower the cost of raw material until it is in line with the cost of manufacturing, then, sweetpotato starch will be in a position to absorb its full share of the 250,000,000 pounds of root starch that are imported. Plant breeders are concentrating on this problem now, and some believe it can be solved.

Tests of Sweetpotato Starch

Sweetpotato starch was not offered to the public until it had been tried on a commercial basis in industrial plants.

Since one of the largest uses of starch is for sizing warp yarns in textile mills the new sweetpotato starch was first tried in that field. A number of mills were asked to try sweetpotato starch on a commercial scale. Here are the results of the tests in one of the largest of the Southern mills, which makes a very high grade of sheeting and bag goods. It has 799 looms in constant operation, has used sweetpotato starch off and on since the starch plant started production in 1934, and has been using sweetpotato starch exclusively since May 1936. It uses more than 2 tons of starch a week.

Among the tests made by this mill was one in which 48 looms were operated on a comparison test for 4 full weeks. Half of the 48 looms used warp yarns sized with sweetpotato starch while the other 24 used yarns sized with starch similar to that used by the mill for years. There were 244 less stops on the looms using the sweetpotato starch sizing than on the other looms. And loom stops are the things that mill people fight because they stop production and profit.

The results of another test showed that sweetpotato starch penetrates the warp thread better than the average starch. This is important because it enables the splicing machine to operate more efficiently, and reduces the "shedding" of starch from the yarn.

Tests were also made by one of the largest manufacturers of adhesives. After trying the new starch for a year the plant reports that sweetpotato starch can be used instead of cassava in every branch of the manufacture of dextrin, vegetable glue, and sizing.

Joint tests by the Bureau of Engraving and Printing and the Bureau of Chemistry and Soils show that dextrin made from sweetpotato starch can be used as an adhesive for postage stamps, labels, and envelopes. And this, by the way, is the only domestic starch that meets the specifications for the adhesive used on postage stamps. Imported cassava starch is used altogether at present.

Commercial laundries have also tried sweetpotato starch. It is now in use in a number of laundries in Mississippi and Alabama.

In general, the properties of sweetpotato starch appear to be between cassava and Irish potato starch, and can be used for almost any purpose these starches are used for.

Sweetpotato starch keeps well, and can be carried over from one season to the next. Starch made in October was found to be satisfactory the following summer and fall. There is very little deterioration when the starch is stored under normal conditions.

The Farm Angle

The sweetpotato starch plant is helping farmers in the Laurel section by providing an extra market for a farm product. It is acting as a sort of crop insurance for farmers who have depended largely on cotton in the past. This new industry not only provides a cash market for culls, cuts, and other unmarketable sweetpotatoes (averaging about 20 per cent of the crop) but a ready market for a few acres of potatoes produced as a sideline to the main crops.

Approximately 42,000 bushels of potatoes were delivered to the starch plant during the 1936 season. The cooperative organization advanced farmers 20 cents a bushel (cash) the day the potatoes were delivered. I might add that after operating on a more or less experimental basis for 2 seasons, 1934-35, the plant went on a full commercial basis in 1936 and, according to current prices at the end of the season, made a net operating profit of several thousand dollars. The farmer's profit in this new industry depends largely on yield and starch content of potatoes,

(*Continued on page* 68)

Sweetpotato starch was used in laundrying all dresses shown, including the one the mother is wearing.

TRIANGULAR FOREIGN TRADE

Logical Answer to the Import Question

By

Donald Comer*

President, American Cotton Manufacturers Association

THE balance of trade between the United States and Brazil in 1935 was $55,636,676 against the United States. The balance of trade between the United States and Colombia in 1935 was $28,507,399 against the United States. This result comes from the fact that we import their coffeee in very much larger dollar values than we export to them.

Trade balances against the United States prevail in the case of China, the Malay States, the Dutch East Indies and quite a few other countries. I have mentioned the above because they are largely agricultural and countries of relatively low wages and spending income.

In 1932 the trade between Japan and the United States was nearly equal—the small balance being against the United States. At that time Japan was shipping us none of her cotton textiles but was using more of our cotton than she is today. Her silk and our cotton were fairly balancing. In 1933 while silk went down AAA put cotton up and NRA doubled our textile wages. The cheaper price of silk and the fact that Japan's purchases from this country broadened in such items as scrap iron, oils and wood pulp threw the balance of trade against Japan. Because of this and because of the higher price for American cotton and the higher prices of our textile wages, Japan began first supplying a larger per cent of her cotton needs from foreign growths, and at the same time entering into direct competition with American spinners first in our export fields like the Philippine Islands, Central and South America and the West Indies, and is now entering our domestic markets in tremendously increasing monthly percentages, not only in yard goods but cotton gloves, hosiery, fish net, handkerchiefs, etc.

IF Japan is willing to continue using American cotton at prices acceptable to our farmers and in value larger than we in turn want or need her silk or other products, she does not have to balance the account by crowding into our market unneeded cotton goods. She can take her cotton goods to Brazil and Colombia or any of the other low wage scale countries and take her pay in the raw products of those countries, products which we need —coffee from Brazil and Colombia—tea from China—rubber and tin from the East Indies.

International trade can and does operate like a banking clearing house. Trade between two nations—trade between Japan and America—doesn't have to be balanced by paying for what each of us needs from the other in unwanted or unneeded goods. Nor does the balance in trade have to be adjusted by payment in gold. The triangular arrangement is the logical answer—the clearing house way.

THE need of some such understanding with Japan today is obvious. That is the objective of a committee of American cotton manufacturers which is now in Japan. She is trying to pay us for her present unfavorable trade balance in cotton goods. That this is unsatisfactory to this country is evidenced by the recent increase by President Roosevelt of 42% in tariff rates against certain Japanese goods, and with other increases now under study. Increases in tariff rates is not the ultimate answer. As a matter of fact, it is not effective and this action on the part of our Government came only after the break down of negotiations looking toward the adjustment of this whole question. Certainly negotiations can and should begin again and along this line. Every one knows that there is nothing more provocative of resentment than the raising of tariff barriers against the products of a particular nation, however well justified by the facts in the case. The very fact of this mission to Japan with the blessing of our Government upon it, is proof of our desire to find a better way—a friendlier way, and voluntarily entered into.

ALL statistics of production and consumption during recent years show a continuing decrease in American cotton to the world crop. Cotton is the basis of cheap clothing. The world demands cheap clothing. Every student of economics knows at what sacrifice of man and land value the South has in the past supplied the world with cheap cotton. To maintain a supremacy in the world market for cotton, we have had to do it at a price in competition with Asia and Africa and at prices which while miserably cheap were yet too high to permit even the meagre supply of cotton goods for the man who plows, hoes and picks it. We are all agreed as to the truth of this. The question now is not how much we can get of this world cotton trade but how much we can afford to take. There continues to be a demand today for the entire world crop of cotton—around 29,000,000 bales—of which amount we are growing about 12,500,000 bales this year.

My guess is that the world spinners today, in looking for their cotton supplies, will take first of our American cotton and then fill the balance of their needs from other growths. America continues to grow the best cotton in the world. We are thoroughly awake to the need of not only maintaining our standard but of improving it.

FOR the time being a wise policy would be to grow cotton for the needs of American mills on some domestic allotment plan with some Government assistance for parity price—the farmers then to grow cotton or whatever else will bring them the most satisfactory reward for their effort.

I think soil conservation, escape from farm tenancy, (the solution of which problems has become our first national concern), equal reward for equal effort as between farm and industry in the South, will be hurried by more legumes, more pasturage and more dairy and livestock farming, all of which means less and less acreage for cotton.

UNTIL a few years ago Japan was an agricultural country, poor among the nations with wage and living conditions entirely different from ours. She could buy nothing from other nations—she had only the production of her hand labor to sell. But Japan was not content and her ambition led her into a revolutionary industrial development. Different from America, she brought to industry as tenders of the most modern automatic machinery, farm girls paying them their same farm wage, again differing from America—they are making things for others—not for themselves. Their wants remain the same as before the industrial era. They work three years in industry and then return to their farm homes and farm standards. Girls of 13 years of age work more than 8 hours a day for less than 25 cents. Our industrial program in the South has for its hope, the giving to farm boys and girls not only a chance for a permanent industrial life but a chance for a higher level of reward, thereby raising the entire wage and income structure of the whole section.

I think all economists are agreed that a fair mixing of agriculture and industry is the ideal. One of our difficulties in this country is that we have for many years lived with definite industrialized sections and definite agricultural sections. There is a natural resistance on the part of our industrial sections (which becomes political) to every effort which our agricultural sections make to bring industry—its wages and its products—closer. Our cheaper agricultural income is a constant invitation for some degree of exploitation and has also been used by our section to gain an industrial start, and for overcoming those natural handicaps attendant upon new departures from established orders.

WE now have in this country a tremendous surplus of textile equipment —more than enough to supply our home needs. Eighty per cent of our cotton is spun in the South. Therefore every imported yard of cloth from Japan can mean just one thing—the stopping of an American spindle and the stopping of an American textile job.

Japan's industrialization plan moves farm labor to her cotton mills and is making her richer. The coming of Japanese cloth to America will surely move our textile workers back to the farm and will

(Continued on page 74)

* Mr. Comer is a member of a committee of American cotton manufacturers now in Japan to discuss with Japanese cotton manufacturers their respective problems with the aim of reaching an agreement as to a reasonable volume of cotton goods shipments to this country.

ARKANSAS PREPARES FOR GREATER INDUSTRIAL EXPANSION

Opportunity Is At Hand

By

Governor Carl E. Bailey

No one recognizes better than I do that Arkansas is predominantly an agricultural state. The best guarantee of profitable farming operations is a market close at hand, able and willing to pay a fair price for agricultural products. As I see it, establishment of new industries along logical lines constitutes the best insurance of desirable markets into which produce from our farms can flow. There is every reason to believe that with the proper encouragement many plants could be operated in Arkansas with profit both to the owners and to the people. The further processing of the output of Arkansas' fields and forests will provide employment insurance to thousands who are now on government payrolls and who can look forward only to part-time jobs.

The conviction that the State Government can and should do something to promote industrial development that will fit readily into the normal pattern of our existence, prompted me to designate an honorary Industrial Development Commission with Nathaniel Dyke, Jr., of Little Rock, as Chairman. Investigations which he has made have proven beyond question that the opportunity is at hand. All that is necessary is for the State of Arkansas to let the rest of the world know what it has to offer.

During my administration, I expect to see to it that this favorable information about Arkansas is widely heralded. Pledges of cooperation that have come from business leaders individually, Chambers of Commerce, and other civic groups throughout the State convince me that the public is ready to support a movement for establishment of new industries and expansion of those we already have.

Commission Organized to Investigate Possibilities and Recommend Plan for State-Wide Action to Further Development of Existing Industries and the Location of New Ones

By

Nathaniel Dyke, Jr.

Chairman, Arkansas Industrial Commission

DURING the past four years industry has been moving South at an accelerated rate. During succeeding years the decentralization of industries and their subsequent movement Southward will continue at a high rate.

First, the textiles and second, wood pulp and paper industries have become convinced that their home is logically in the South. The textile industries were established in New England many years ago when that section was not only the center of population but during the supremacy of the north Atlantic sea ports for importing and exporting. The development of Southern ports for export: the shifting of the center of population: better working conditions: climatic, economic, and other factors, are bringing the textile industries South where they belong. They now consume 88 per cent of the cotton used in domestic mills. More than $22,000,000 was invested during 1936 in expanding Southern textile operations.

THE paper industry on this continent was originally established near the Northern forests but with the cutting out of Canadian timber and the vast forests in the Northern part of the United States, the wood pulp industries suddenly realized that Southern Yellow Pine could be developed commercially in ten years against thirty-five in Canada and this, with the discovery that Southern Yellow Pine could be used in making white paper, has moved wood pulp industries in growing numbers South over night, and during 1937 and 1938 every new mill will undoubtedly be established in the South and Southwest. It is estimated that pulp and paper plants are underway amounting to an investment of approximately $60,000,000.

THE Commission is especially interested in the development of Farm Chemurgic industries in the State and plans to study the possibilities of a wider use of cotton, cotton seed, sugar cane, bagasse, rice, tung oil, sweet potatoes, soy beans, wood pulp, naval stores, and other Southern products, through the application of Chemistry, a direct reflection of the growing interest in both Chemical Plants and Chemical consuming industries.

DR. George E. Branner, State Geologist and Vice President of Arkansas State Planning Board, in a special report, deals with the possibilities of using and fabricating Arkansas' natural resources. According to the Board, more than 70 per cent of the population of Arkansas is agricultural and we are particularly interested in industries which will use and fabricate farm products and thus give us a better market for our farmers. There is a limit to the food uses of agriculture and we must depend to a large extent upon the non-food uses for agriculture of which there are many.

ONE obvious approach," says Dr. Branner, "is the creation of new industries and the further development of existing industries which will utilize the wealth of raw material available. Continued migration of industries to the South from the East and North offers unprecedented possibilities in this direction.

(*Continued on page 76*)

Arkansas Portland Cement Co.
Okay, Arkansas

$74,000,000 CONSTRUCTION AWARDS

With $375,000,000 Proposed Work Announced During January in the South

CONTRACT awards made in January for construction, engineering and building projects in the South amount to more than $74,000,000. An extensive amount of new construction is indicated by the total of $375,000,000—contracts not yet placed, as reported by the DAILY CONSTRUCTION BULLETIN OF THE MANUFACTURERS RECORD. Approximately 45 per cent of the January awards are for industrial and engineering projects, 15 per cent for general building work and 20 per cent each for public building and for road and bridge construction.

January industrial contracts amounted to $28,112,000, or 33 per cent of the month's total. Awards for industrial expansion made in January of last year represented almost 44 per cent of that month's total.

General building lettings of $10,587,000 aggregated 15 per cent of the January figure. This was made up of $2,584,000 awards for apartments and hotel projects, $288,000 for association and fraternal buildings, $1,225,000 for bank and office construction, $127,000 for church work, $4,684,000 for the erection of dwellings and $1,679,000 for new stores and improvements.

January totals for public building work, and for highway work, each approximated 20 per cent of the month's total, the figures for the former being $13,742,000 and that for the latter, $13,787,000. Public building awards were a substantial increase over the $8,051,000 for December although they represented but little over half the amount for awards made in January a year ago. Road contracts were also below the December valuation which amounted to $15,485,000.

Sewer and waterworks construction awards for January totaled $7,634,000. Most outstanding among these was that for a six-mile water tunnel at Baltimore, to cost in excess of $5,389,000.

First in rank in the industrial field was the $6,800,000 award for constructing the St. Joe Paper Company's plant at St. Joe, Fla. Another $5,000,000 paper plant—the first newsprint manufactory for the South—was proposed for the East Texas area by the Southland Paper Mills, Inc. The Sonoco Products Co., paper and paper products manufacturers of Hartsville, S. C., started plant extensions to cost $500,000.

Letting of contracts for the $1,500,000 American Can Company's plant at Houston; completion of the $500,000 Tampa plant of the Continental Can Company; storage bins for the $2,500,000 cement manufacturing facilities of the Universal Atlas Cement Co., at Leeds, Ala., erection of a $200,000 "fill-in" building preliminary to starting a $2,000,000 expansion at the Baltimore aircraft plant of the Glenn L. Martin Co., were indicative of the magnitude and variety of growing industrial enterprises at widely separated points throughout the Southern area.

The Tennessee Coal, Iron and Railroad Co., Birmingham, subsidiary of the United States Steel Corporation, announced further expansion involving modernization of a subsidiary wire mill, located adjacent to the $29,000,000 tin plate department now under construction. This and the $35,000,000 program including immense tin plant facilities at the Sparrows Point, Md., mill of the Bethlehem Steel Company, constitute two of the major steel development projects of the country.

Southern power companies announced improvements involving many millions. Consolidated Gas, Electric Light and Power Co., Baltimore, has a 1937 construction budget of $7,042,000. Alabama Power Co., Birmingham, during the year will spend $3,700,000. A $2,500,000 program is being launched by Oklahoma Gas & Electric Co., Oklahoma City, Okla. New construction of the Georgia Power Co., Atlanta, will cost $7,000,000. Virginia Electric & Power Co., Richmond, which recently completed a $2,000,000, generating station addition, will spend $700,000 for improving its transportation department. The 1937 construction and extension work of San Antonio Public Service Co., San Antonio, Tex., will cost $1,400,000. Dallas Power & Light Co., Dallas, plans $16,000,000 security issue, over $3,000,000 of which is for working capital and extensions and improvements. The Maryland Light & Power Co., Salisbury, Md., will build lines costing $150,000.

Federal authorization of the proposal of the Virginian Railway to build a $1,000,000 23-mile extension of its Morri branch was the prominent railroad line project in the South. The Baltimore & Ohio Railroad announced its plan to build 4,000 freight cars at a cost of $10,000,000, and the Nashville, Chattanooga and St. Louis Railway received bids for 500 steel box cars estimated to cost $1,250,000, with a further improvement of equipment proposed at a cost of $1,500,000. Missouri-Kansas-Texas lines will spend $15,000,000 for new equipment and track and equipment maintenance. The Atchison, Topeka & Sante Fe has a 1937 budget of $41,094,000. Southern Pacific Lines plan a $41,000,000 expenditure for new rolling stock. Seaboard Air Line plans $2,500,000 security issue to finance purchase of equipment, while the Illinois Central System's expenditure will amount to $9,000,000. The Clinchfield Railroad will soon place orders for 650 freight cars. Kansas City Southern has authority to issue $3,195,000 equipment trust certificates.

SOUTHERN CONSTRUCTION ACTIVITY—By States

States	January, 1937 Contracts Awarded	Contracts to be Awarded
Alabama	$4,135,000	$34,825,000
Arkansas	1,199,000	5,624,000
District of Columbia	8,437,000	12,586,000
Florida	10,517,000	12,383,000
Georgia	1,893,000	17,347,000
Kentucky	2,015,000	6,421,000
Louisiana	1,842,000	13,346,000
Maryland	13,776,000	11,426,000
Mississippi	1,659,000	22,572,000
Missouri	1,727,000	26,527,000
North Carolina	6,037,000	42,019,000
Oklahoma	1,500,000	14,065,000
South Carolina	1,800,000	5,715,000
Tennessee	2,663,000	29,559,000
Texas	10,923,000	73,739,000
Virginia	1,968,000	17,633,000
West Virginia	2,090,000	29,551,000
	$74,181,000	$375,338,000

Southern Construction Activity

	January, 1937 Contracts Awarded	Contracts to be Awarded
General Building		
Apartments and Hotels	$ 2,584,000	$ 7,403,000
Association and Fraternal	288,000	250,000
Bank and Office	1,225,000	819,000
Churches	127,000	1,185,000
Dwellings	4,684,000	3,307,000
Stores	1,679,000	2,083,000
	$10,587,000	$ 15,047,000
Public Buildings		
City, County, Government & State	$ 9,749,000	$ 30,410,000
Schools	3,993,000	10,132,000
	$13,742,000	$ 40,542,000
Roads, Streets and Paving	$13,787,000	$127,245,000
Industrial and Engineering		
Drainage, Dredging and Irrigation	$ 97,000	$ 35,702,000
Filling Stations, Garages, etc.	222,000	556,000
Industrial Plants	28,112,000	141,061,000
Sewers and Waterworks	7,634,000	15,185,000
	$36,065,000	$192,504,000
Totals	$74,181,000	$375,338,000

COLONIAL design tanks for MUNICIPAL water supply

The Colonial Design elevated tank is popular with Southern cities. Several years ago the city of Tallahassee, Fla., installed a 400,000 gal., Colonial tank to provide gravity water pressure for its waterworks system. Augusta, Ga., put in a slightly larger one—with 500,000 gals. capacity. Now another 500,000 gal. installation has been made at Decatur, Ga. to increase the amount of elevated storage in the city's distribution system. This one, which is illustrated above, is 68 ft. 2 in. to bottom.

Whenever municipal waterworks improvements are being contemplated, we will appreciate the opportunity of submitting information on the Colonial design to municipal officials and engineers. We also build elevated tanks of other designs, flat-bottom tanks and steel plate work of all kinds for industrial and municipal service.

CHICAGO BRIDGE & IRON COMPANY

Birmingham .....1530 North Fiftieth Street	New York .....3313-165 Broadway Bldg.	Philadelphia .....1619-1700 Walnut Street Bldg.
Dallas .....1408 Dallas Athletic Club Bldg.	Cleveland .....2216 Rockefeller Bldg.	Detroit .....1510 Lafayette Bldg.
Houston .....2919 Main Street	Chicago .....2106 Old Colony Bldg.	Boston .....1510 Consolidated Gas Bldg.
Tulsa .....1611 Hunt Bldg.	San Francisco .....1040 Rialto Bldg.	Havana .....Edificio Abreu 402

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

B-485

Representative Projects in the South Last Month

Proposed Construction

Ala., Fairfield—Tennessee Coal, Iron & Railroad Co.
Wire plant improvements 200,000
Ala., Montgomery—Barton R. Biever, Pottsville, Pa.
Paper box plant 150,000
Alabama—Alabama Power Co., Birmingham
Extensions and improvements 3,700,000
Ark., Hot Springs—City
City Hall, auditorium; Erhart & Eichenbaum, Little Rock, Archts. 300,000
D. C., Washington—Andrew W. Mellon
Art gallery; John Russel Pope, N. Y., Archt. 9,000,000
D. C., Washington—District Commissioners
Library; Nathan C. Wyeth, Municipal Archt. 150,000
D. C., Washington—Catholic University
Faculty building; Murphey & Olmstead, Archts. 200,000
Fla., Miami Beach—Louis Nelson and Associates
Hotel 600,000
Fla., Miami Beach—Detroit Hotel Corp.
Hotel; Alvert Anis, Archt. 350,000
Fla., Miami—Julio Sanchez and A. Frank Katzentine
Residential development 350,000
Ga., Atlanta—Georgia Power Co.
Construction program 7,000,000
Ga., Rome—Board of Education
High school; Odis Clay Poundstone, Atlanta, Archt. 200,000
Ga., Cedartown—National Oil Products Co., Harrison, N. J.
Plant 1,000,000
Md., Baltimore—Consolidated Gas, Electric Light & Power Co.
Construction program 7,042,000
Md., Middle River—Glenn L. Martin Co.
Expansion program; Taylor & Fisher, Baltimore, Archts. 2,000,000
Md., Elkton—Cecil County
Court house 150,000
Md., Leonardtown—Maryland Light & Power Co.
Power lines 150,000
Md., Rockville—Montgomery County Board of Education
School building 470,000
Miss., Cleveland—Delta State Teachers' College
Building; V. B. Smith, Jr., Gulfport, Archt. 110,000
Mo., St. Charles—Board of Education
Schools; William B. Ittner, Inc., St. Louis, Archt..... 200,000
Mo., St. Louis—City
Armory 1,347,000
Mo., Clayton—St. John's Overland Sanitary Sewer District
Sewerage system 310,000
Mo., St. Louis—Third Baptist Church
Church building 200,000
N. C., Greensboro—Ragan Spinning Co.
Plant addition; H. B. Bibberstein, Charlotte, Archt..... 150,000
N. C., Greensboro—Julian Price and Emory C. Green
Apartment; Charles C. Hartmann, Archt. 400,000
Okla., Tulsa—City
Water improvements 330,000
Okla., Lawton—City
Reservoir; W. B. Hendricks, Engr. 175,000
Okla., Tulsa—Dr. S. G. Kennedy
Air-conditioning building 250,000
Okla., Chickasha—Chickasha Metropolitan Water District
Waterworks; Robert O. Bradley & Co., Engrs. 2,565,000
Okla., Oklahoma City—Oklahoma Gas & Electric Co.
Expansion program 2,500,000
S. C., Greenville—School Trustees
High School—J. E. Sirrine & Co., Engrs. 425,000
Tenn., Elizabethton—National Tire & Rubber Co.
Rubber plant 225,000
Tenn., Nashville — Nashville, Chattanooga & St. Louis Railway
Equipment improvements 1,500,000
Tenn., Murfreesboro—Rutherford County
Court house 250,000
Tenn., Memphis—Lehon Company
Roofing and shingle plant 200,000
Tex., Port Arthur—Port Arthur Independent School District
Junior high school; Mark Lemmon, Dallas, Archt. 580,000
Tex., Bryson—W. F. Mitchell, Dallas
Casinghead electric plant 150,000
Tex., Houston—Resettlement Administration
Farm houses 231,000
Tex., Houston—Houston Electric Co.
Bus Lines 325,000
Tex., San Antonio—San Antonio Public Service Co.
Construction program 1,400,000
Tex., Dallas—Dallas Power & Light Co.
Improvements, etc. 3,400,000
Texas—Phillipe Petroleum Co., Bartlesville, Okla.
Gasoline plant 600,000
Tex., Houston—Second National Bank Building
Air-conditioning; Leo S. Weil and Walter B. Moses, New Orleans, La., Archts. 200,000
Tex., Corpus Christi—Mrs. Clara Driscoll Sevier
Hotel; Henry T. Phelps, San Antonio, Archt. 1,500,000
Va., Wachapreague—H. S. Holmes, New York representative
Hotel 500,000
Virginia—Virginia Electric & Power Co.
Buses, etc. 700,000
Va., Altavista—Lane Company
Plant improvements—Bryan-Terhune, N. Y., Engrs. 100,000
Va., Charlottesville—Monticello Dairy
Creamery 100,000
Va., Richmond—State Library Building Commission
Library 1,000,000
W. Va., Montgomery—Coal Valley Hospital
Hospital; Warne-Tucker-Silling, Charleston, Archts..... 300,000
West Virginia—Virginian Railway
Branch line 1,000,000
W. Va., Charleston—Michael and Hyman C. Cohen
Hotel apartment; Walter F. Martens, Archt. 175,000

Contracts Awarded

Ala., Leeds—Universal Atlas Cement Co.
Nickerson & Co., New York, Contr., for bins for plant, estimated to cost 2,500,000
Ala., Mobile—First National Bank Building
Air-conditioning system; Carrier Engineering Co., New Orleans, La., Contr. 130,000
D. C., Washington—Treasury Dept.
Apex Building; McCloskey & Co., Philadelphia, Pa., Contr. 3,105,000
D. C., Washington—Acacia Mutual Life Insurance Co.
Apartment; Skinker & Garrett, Contrs. 250,000
D. C., Washington—William H. Walker
Office Building; Schneider-Spliedt Co., Bldr. 392,000
D. C., Washington—District Commissioners
Junior high school addition; Lacchi Construction Co., Baltimore, Md., (low bidder) 164,000
D. C., Washington—Department of Interior
Hospital building; Hyman Construction Co. (low bidder) 264,000
D. C., Washington—District Commissioners
School addition; Jefferson-Dyer, Inc., (low bidder)..... 174,000
Fla., Port St. Joe—St. Joe Paper Co.
Paper plant; James E. Stewart & Co., New York, Contr. 6,800,000
Ga., Gainesville—Dixie Hunt Hotel
Hotel; A. J. Huneycutt, Inc., Birmingham, Ala., Contr. 121,000
Ky., Carlisle—Board of Education
Elementary and junior high school; Whittenberg Construction Co., Louisville, Contr. 241,000
Ky., Lexington—Veterans' Administration
Hospital additions; J. A. Jones Construction Co., Charlotte, N. C., Contr. 576,000
La., New Orleans—Charity Hospital
Ambulance house, laundry; Caldwell Brothers & Hart, (low bidders) 216,000
Md., Baltimore—City
Water tunnel; J. F. Shea Co., Los Angeles, Calif., Contr. 5,389,000
Md., Baltimore—City
Storm drainage; John Matricciani, Contr. 271,000
Md., Baltimore—Green Spring Dairy
Dairy and garage; Consolidated Engineering Co., Contr. 300,000
Md., McDonogh—McDonogh School for Boys
Dormitory and infirmary; Engineering & Contracting Corp., Baltimore, Contr. 156,000
Md., Baltimore—Baltimore & Ohio Railroad
Freight cars; Bethlehem Steel Corp., Bethlehem, Pa..... 5,000,000
Miss., Cleveland—City
Sanitary sewers; B. & M. Construction Co., Oklahoma City, Okla., Contr. 119,000
Mo., Fulton—State Building Commission
Power plant work; Groeshel Co., Marshall, (low bidder). 185,000
Mo., Jefferson City—State Building Commission
Elevator plant; Otis Elevator Co., St. Louis (low bidder) 185,000
Mo., Fulton—State Building Commission
Auditorium, kitchen, dining hall; Epple Construction Co., Columbia, Contr. 197,000
Mo., St. Louis—City
Colored community center; I. E. Millstone Construction Co., (low bidder) 186,000
Mo., Springfield—Treasury Dept.
Post office and court house; Henke Construction Co., Chicago, (low bidder) 462,000
N. C., Spray, Draper—Marshall Field & Co.
Textile plant improvements; Southeastern Construction Co. Charlotte, Contr..... 263,900
N. C., Wilmington—James Walker Memorial Hospital
Hospital; Goode Construction Co., Charlotte, Contr.... 150,000
N. C., Lenoir—Rural Electrification Administration
Rural electric lines; Miller Electric Co., Jacksonville, Fla. 370,000
N. C.,—Albemarle—City
Sewage plant and incinerator; Blythe Brothers Co., Charlotte, Contr. 250,000
N. C., Rockingham—W. P. Cole and Associates
Hosiery mill addition; C. M. Guest & Sons, Anderson, S. C., Contr. 150,000
Okla., Walters—City
Earth dam; Municipal Service Co., Kansas City, Mo., Contr. 151,000
Okla., Tulsa—Board of Education
Schools; Wells Construction Co.; W. R. Grimshaw Co.; Brickner-Rucks Construction Co., Contrs. 205,000
S. C., Hartsville—Sonoco Products Co.
Plant additions; Fiske-Carter Construction Co., Spartanburg, Contr. 500,000
S. C., State Park—State Board of Health, Columbia
Hospital, power plant; J. A. Jones Construction Co., Charlotte, N. C. (low bidder) 372,000
Tenn., Knoxville—Tennessee Valley Authority
Generators (Pickwick Landing); Westinghouse Electric & Manufacturing Co., East Pittsburgh, Contr..... 934,000
Tenn., Knoxville—S. & W. Cafeteria
Building additions and alterations; A. H. Whisman, Contr. 185,000
Tex., Houston—Sisters of Charity of the Incarnate Word
Infirmary building; Southwestern Construction Co., Contr. 750,000
Tex., Houston—American Can Co.
Can plant; J. E. Smith Corp., Dallas, Contr. $1,500,000
Tex., Houston—Humble Oil & Refining Co.
Pipeline; Apex Construction Co., Contr. 2,000,000
Tex., Port Arthur—City
Bulkhead; J. DePuy, (low bidder) 436,000
Va., Richland—Clinch Valley Clinic Hospital
Hospital; Bristol Iron & Steel Works, Bristol, Va., steel contract 200,000
Va., Lynchburg—Randolph Macon Woman's College
Science hall; John G. Pettyjohn & Co., Contr. 175,000
W. Va., Wheeling—Treasury Dept.
Post office; A. Farnell Blair, Lake Charles, La., (low bidder) 437,000

LONG DISTANCE RATES REDUCED AGAIN!

ON JANUARY 15, 1937

EIGHT reductions in about ten years have substantially cut the cost of Long Distance telephone service.

The latest reduction in Long Distance rates became effective January 15.

Many interstate rates, for calls of more than 42 miles, are reduced. These reductions apply to all day and to many night and all-day Sunday rates for such calls.

The reductions for the first three minutes range from 5c to $1, depending on distance.

It costs less now to do business in distant cities—quickly, *personally*. It's easier for far-apart friends to keep in *close* touch.

Sample rates listed below indicate the downward trend during the last decade. Quality of transmission and speed of service have been markedly improved in the same period. The average time required to establish a Long Distance connection was over five minutes in 1926 — is less than a minute and a half today.

HOW LONG DISTANCE RATES HAVE BEEN CUT AS THE RESULT OF 8 REDUCTIONS IN THE LAST 10 YEARS:

RATES FOR 3-MINUTE DAYTIME CALLS*		Station-to-Station		Person-to-Person	
From	To	January 15, 1926	Jan. 15, 1937	January 15, 1926	Jan. 15, 1937
Cleveland	Detroit	$ .65	$ .50	$ .80	$ .70
New York	Washington	1.35	.85	1.65	1.20
Chicago	St. Louis	1.70	1.00	2.10	1.35
Detroit	Washington	2.50	1.30	3.10	1.75
Philadelphia	Asheville	3.15	1.55	3.90	2.05
Buffalo	Nashville	4.15	1.95	5.15	2.60
Chicago	Dallas	5.05	2.30	6.30	3.00
Boston	New Orleans	8.60	3.75	10.75	4.75
Baltimore	Salt Lake City	11.90	5.00	14.85	6.75
New York	San Francisco	16.50	6.50	20.60	8.75

* Night and all-day Sunday rates are still lower.

LUMBER NEWS OF THE MONTH

Southern Pine Orders and Shipments Gain

REPORTS from 101 Southern pine mills, for the week ended Saturday, January 23, 1937, show: orders received amounting to 1,814 cars, or 38,092,000 feet, representing on the average, an increase of 18 per cent above the previous week, and 24 per cent above the corresponding week of last year; shipments aggregated 1,517 cars, or 31,866,000 feet, a decrease on the average, of 2 per cent below the preceding week, but an increase of 11 per cent above the similar week of last year; production totaled 28,837,000 feet, representing an increase, on the average, of 1 per cent above the week before, and an increase of 3 per cent above the like week of the past year.

Orders on hand yet to be filled at these 101 mills, on January 23, 1937, totaled 124,055,000 feet, equivalent to 5,907 cars. This represents an increase of 5 per cent above the aggregate unfilled order files at close of the preceding week.

Total stocks on hand January 23, 1937, at 97 reporting mills, aggregated 365,797,000 feet, or 83 per cent of normal and 13 per cent below this time a year ago.

New Business Above Production

PRODUCTION of lumber in the United States during January ranged from 41 to 47 per cent of the 1929 weekly average. Weekly shipments were from 48 to 54 per cent of the 1929 average.

Production continued low, largely seasonal, but shipments are still restricted by the long-continued maritime strike. New business rose appreciably over the preceding holiday weeks, reports the National Lumber Manufacturers Association. National production reported during the week ended January 16 by 7 per cent fewer mills was 5 per cent below the output of the previous week; shipments were 1 per cent above and new orders 9 per cent above shipments and orders of that week. Reported new business of important hardwood and softwood mills during the week ended January 16 was 41 per cent in excess of production; shipments were 15 per cent above output. Reported new business of the previous week was 24 per cent above production; shipments were 8 per cent above output. Production in the week ended January 16 was shown by reporting hardwood and softwood mills 13 per cent below the corresponding week of 1936; shipments were 3 per cent above shipments of last year's week and new orders 3 per cent above orders of a year ago.

During the week ended January 16, 512 mills produced 161,234,000 feet of hardwoods and softwoods combined; shipped 184,695,000 feet; booked orders of 227,351,000 feet. Revised figures for the preceding week were mills 553; production, 169,061,000 feet; shipments, 182,310,000 feet; orders, 209,120,000 feet. All regions but Northern hemlock, Southern hardwoods and Northern hardwoods reported orders above production in the week ended January 16.

Annual Convention Southern Pine Association

THE twenty-second annual meeting of the Southern Pine Association, comprising lumber manufacturers in 16 states, will be held in New Orleans, March 29-31, H. C. Berckes, secretary-manager, announced.

All the major details of the program have not yet been arranged, but problems of distribution and closer cooperation between manufacturers and distributors of Southern pine will be one of the important subjects for consideration. Tentative plans have been made for the attendance at the meeting of secretaries of retail associations and other lumber distributors' organizations in Southern pine consuming territory, and it is expected that plans will be formed for cooperation between producers and distributors to augment the sale and use of lumber in coming months, to promote sound construction and use of quality lumber and prevent spread of "jerry-building" in the rising market for housing which already is in evidence.

Trade promotion, legislation affecting the lumber industry, and formulation of a program for SPA activities for the ensuing year will occupy much of the time of the manufacturers at the annual meeting and the sessions promise to develop important discussions and action of vital concern to the southern pine industry.

"Jerry-Building" Problem of Lumber Industry

MUCH interest was manifested by members of the Carolina Building Material Institute, at the recent session of their 14th annual convention held in Hotel Charlotte, in the address on "Jerry Building and the Retail Lumber Dealer," delivered by W. H. O'Brien, field engineer of the Southern Pine Association, from New Orleans. Mr. O'Brien asserted that "jerry-building" is a major problem of the lumber industry today. "It destroys confidence in the advantages of home ownership," he said. "It results in over-emphasis on price at the expense of important considerations, and it causes homes to become unlivable, or to need costly repairs. All these things not only seriously weaken the standing of lumber, which is the main home-building material of the country, but they also are serious handicaps to the responsible lumber dealers and competent contractors."

Mr. O'Brien asserted that "jerry-building" has imposed an unnecessary hardship on thousands of home-owners in years gone by, and financing institutions have had many "jerry-built" houses on their hands which because of rapid deterioration were given up by the owners. "You lumber dealers," he said, "have a responsibility in stamping out this evil.

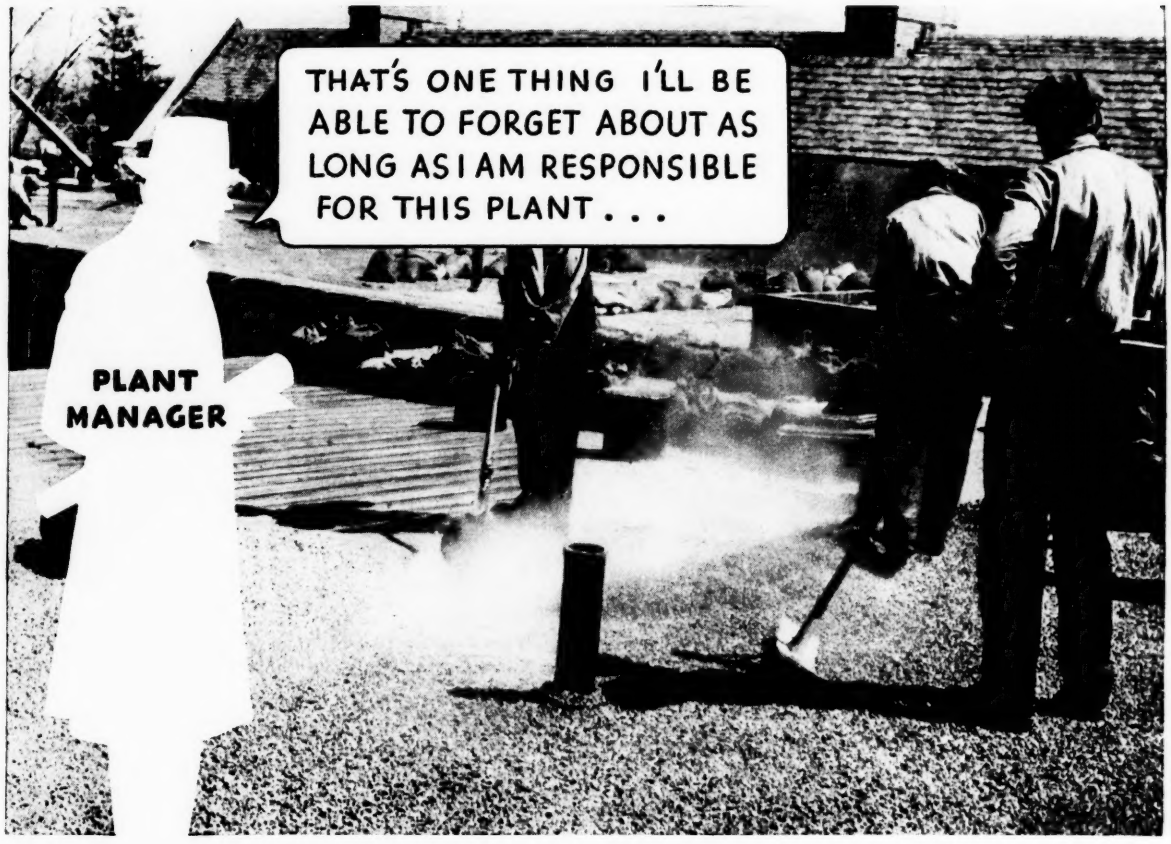
The speaker referred to predictions and estimates of greatly increased volume of home building in this country during 1937 made by various responsible agencies and declared the lumber dealers' problem now is not in finding prospects and means of financing home building, but how to participate profitably in the rapidly increasing market for homes. He mentioned that a conservative estimate of the dollar value of homes expected to be built in 1937 was $830,000,000. "If we continue to use lumber in the same proportion in residential construction this year as we have in the past, it means that lumber will be the structural material in $664,000,000 worth of home building in 1937. There is every reason to believe that lumber will continue in its old time ranking position." The prospect for small homes is of particular interest to lumber dealers, he said, and dealers would do well to cultivate this class of business. Lumber, he said, can be used in the building of moderate-priced homes to better advantage and more substantially than any other material. Continuing, Mr. O'Brien said:

"Because lumber is the structural material that will be used in most of the homes built this year and in the future, the question of building them soundly is a concern of the lumber dealer. Protection of the home-owner against the 'jerry-builder' is a service dealers can profitably render home-builders. There are many definitions of a 'jerry-builder,' but he is probably best described as a commercial builder who erects cheap houses of poor materials and uses unsubstantial and slovenly construction. FHA officials have referred to 'jerry-builders' as 'the racketeers of the construction industry.'

"When there is no one to warn the home-builder of the dangers of 'jerry-building' and he gets a home in which inferior materials were used and cracked plaster and sagging floors develop, with doors and windows that stick, he blames it on the lumber used. If no bridging is placed between the floor joists and the floor is jittery when a person walks over it, representatives of certain competitive materials point it out as a reason why his material should be used. Should untreated lumber be used in contact with the ground, thereby violating good construction practice and providing a cause for decay or termite trouble, all lumber is criticized. The average home-builder is unfamiliar with these things and cannot defend himself against the short-sighted contractor who will not resist the lure of building as cheaply as possible."

Southern Hardwood Convention

SOUTHERN Hardwood Producers, Inc., are planning their annual meeting on March 12 at New Orleans to be of interest to everyone in the Southern hardwood industry. The program for this annual meeting will follow the precedents set by the last annual meeting held at New Orleans and the hardwood industry meeting of last November at Memphis. Details of the program will be announced later.



Buy a Roof that NEVER lets you down!

Barrett Specification Roofs

Buy a Barrett Roof . . . and forget about it for the whole term of your responsibility.

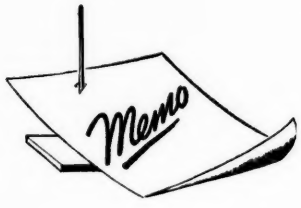
Barrett Specification Roofs are *built to last.* They are bonded by the United States Fidelity and Guaranty Company for 20 years, but the term of the bond only begins to measure their expense-free, trouble-free protection.

They are *soundly engineered,* with every thought toward owner protection. The world's finest pitch and felt are used, applied by Barrett Approved Roofers, who are selected on the basis of experience, ability and integrity. The combination of quality materials and application is your assurance of lasting freedom from roof worries.

THE BARRETT COMPANY
40 Rector Street, New York, N. Y.

2800 So. Sacramento Avenue
Chicago, Illinois

Birmingham
Alabama



Have your roofs inspected by Barrett

Make a note to have your present roofs examined by a trained Barrett inspector. This service is free and may be the means of saving you many hundreds of dollars of needless repair or replacement expense, interrupted production schedules or damage to equipment or product. Phone, wire or write our nearest office.

The nearest Barrett Approved Roofer may be found in the Classified Telephone Directory under "Roofers."

GOOD ROADS AND MOTOR TRANSPORT

Highway Safety Stressed at Convention

AT the recent convention in New Orleans of the American Road Builders' Association, highway safety was a dominant theme in many discussions during the sessions of the meeting. The doctrine of the safe road, while expressed primarily in the proceedings of the committee on safe highways, was carried through the sessions of the convention on base stabilization, foundation, drainage and diversion of road funds. Opening its sessions with a large attendance of delegates, a welcome to the State was extended by A. P. Tugwell, State Treasurer, and to the city by Mayor R. S. Maestri.

Election of officers resulted in the re-election of W. T. Chevalier as president: James H. MacDonald, treasurer, and Charles M. Upham, secretary. Mr. Upham was also reappointed engineering director. District vice presidents were elected as follows: Alexander Hancock, Mobile, Ala.; J. D. Manley, Leesburg, Fla.; W. A. Olen, Clintonville, Wis., and H. G. Sours, Akron, Ohio. The following vice presidents at large were elected: J. A. Bromley, Annapolis, Md.; Frank J. McDevitt, St. Louis, Mo., and W. M. Parish, Chicago.

Possibility of Gasoline Tax Reductions

BECAUSE of the rapidly increasing use and registration of motor vehicles, and the consumption of motor fuel, it is possible that 1937 may see a national average reduction of 40 per cent in state gasoline tax rates without reducing revenues below the 1935 level, according to the American Petroleum Industries Committee of the American Petroleum Institute, New York.

In 1935, the States collected a total of $939,346,000 for gasoline sales taxes and motor vehicle registration fees, with $616,851,000 being credited to the former and $322,481,000 to the latter. Preliminary reports for 1936 indicate an expected increase of $70,000,000 in State gasoline sales tax revenues, and a large increase in registration fees resulting from the registration of about 2,000,000 new vehicles. These upward trends are also expected to continue in 1937, with gasoline sales tax revenues estimated at $110,000,000 more than in 1935 and registration fees a t$50,000,000 more, making a total increase of $160,000,000.

The Institute estimates that the gain in revenues would be increased to more than $300,000,000 if the States should end the practice of diverting highway funds to general purposes. In this connection, it points out that such diversions amounted to $146,459,000 in 1935, and were probably higher in 1936, but with the States receiving larger revenues from other tax sources, it is possible to end this drain upon highway funds.

It is observed that a growing and widespread demand for the reduction of the number of fatalities and accidents on highways now necessitates the resumption of highway work in virtually every State, and it is believed that the expected cost of gasoline sales taxes in 1937, estimated at $726,000,000, could be reduced $300,000,000 below the 1935 total, a saving seen possible through an average reduction of 40 per cent in State gasoline tax rates.

The experience of every State reducing gasoline sales tax rates, it is cited, is that such a reduction has immediately led to an increase in consumption of motor fuel and also to an increase in motor vehicle registrations and automotive trade activity. Increase in consumption tends to offset any decline in revenue expected from reduction of the tax rate, while the situation is further aided by the gain in registration and registration fees, and increased trade and employment.

Sodium Safety Lamps Prevent Road Accidents

LIGHTING a 2.9-mile stretch of Pacific Highway south of Tacoma, Wash., with sodium safety lamps in December, 1935, L. V. Morrow, director of the Washington State Highway Department reports to engineers of General Electric Company, who developed the lighting system, that not one night accident has occurred on that stretch since the installation of the lights. "This record speaks particularly well for the efficiency of the lights," Mr. Morrow declares, "when it is taken into consideration that 20 per cent of the installation is through a section which is built up immediately adjacent to the highway with fruit stands, produce markets, and small restaurants. The lights seem to have been particularly advantageous in bringing into view a vehicle entering upon the main traveled portion of the highway." The lights are also said to be very effective during heavy fogs and storms.

Against Diversion of Highway Funds

RECENT polls of the membership of two business organizations in Greensboro, N. C., indicate that business men of that city are decidedly opposed to the diversion of highway funds to purposes other than the construction and maintenance of highways. Membership of the Greensboro Chamber of Commerce voted 195 to 12 that "all gasoline and automobile taxes collected by the State should be used exclusively for the construction, maintenance and administration of the State highway system and to amortize outstanding highway bond issues."

The Greensboro Merchants Association is conducting a similar poll and early returns indicate that the vote is running five to one against diversion of highway funds.

Out of total receipts of $24,973,000 from gasoline taxes and motor vehicle registration fees in North Carolina in 1935, it is estimated that the sum of $1,757,462 was diverted, or about 7 per cent. Legislation designed to prohibit diversions of this nature will probably be introduced in 30 of the 43 State legislatures convening in 1937.

Truck Law Unreasonable

THE Federal Court at Columbia, S. C., has held that South Carolina's statute limiting trucks to 20,000 pounds gross weight and a width of 90 inches is an unreasonable burden upon interstate commerce in its relation to hard-surfaced main highways. The court held, however, that on other routes the law was "reasonably applicable."

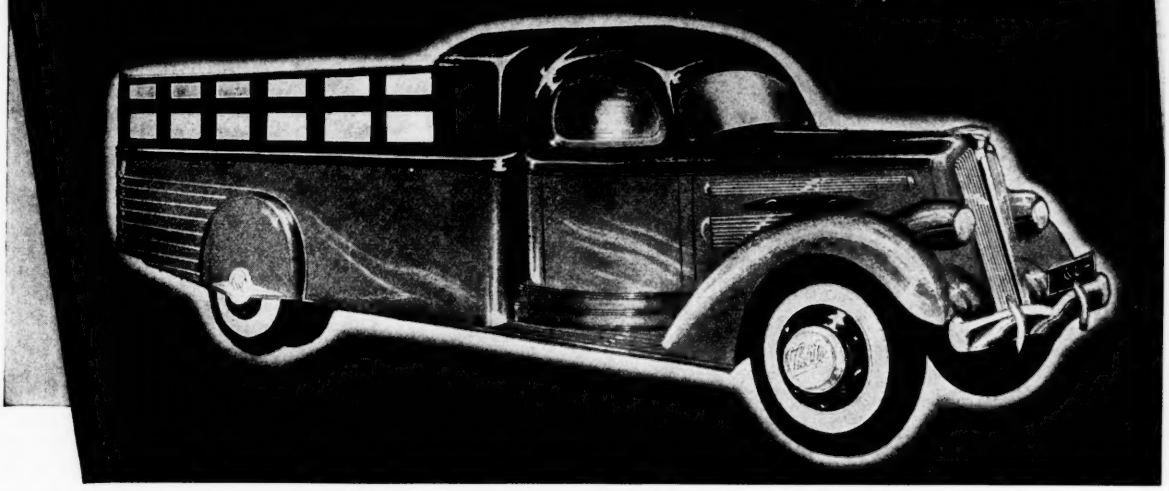
Chevrolet 1937 Truck Line

The 1937 Chevrolet line of commercial cars and trucks, completely redesigned in chassis and bodies, has been announced by Chevrolet Motor Division of General Motors Sales Corporation, Detroit, Mich. All models have a new six cylinder valve-in-head high compression engine of increased horsepower, placed farther forward in the chassis to make room for longer bodies on the commercial cars, and improved load distribution on the 1½-ton models. The new engine devlops 78 horsepower at 3200 r.p.m., an increase of 6 horsepower over the previous model.

NEW MODEL 700—12,000 LBS. GROSS BASE PRICE

A NEW WHITE TRUCK AT A NEW LOW PRICE $985

AND UP—AT CLEVELAND PLANT
for Standard Chassis



● The biggest year's sales in White history—and White's sensational sales gain last year—nearly four times the industry's average every month—now makes possible White Quality at the lowest price in White history.

This gain came largely from operators who found their low priced "passenger car type" trucks unequal to many of today's hauling requirements.

Now a record low price brings White performance to thousands who want a real truck, quality built as a truck, to do a truck's work.

Every ounce a White—with White's modern performance, unequalled economy, exclusive safety features, and "rolling billboard" advertising value—this new White actually costs you only slightly more than the "cheapest" trucks when you add up all the extras.

See it at the White Branch or dealer in your city or telephone for a demonstration.

THE WHITE MOTOR COMPANY • Cleveland

THOUSANDS HAVE SAID, *"Some day I hope to own a White"*

NOW THEY CAN

White TRUCKS

A FEW FEATURES OF THE NEW WHITE

Heavy 7-bearing counterweighted crankshaft with vibration dampener • Improved 4-point rubber engine mounting • Rifle drilled connecting rods • Directionally water cooled exhaust valves • Vacuum controlled distributor providing proper spark advance for every load and speed condition • Down draft carburetor with "hot spot" for perfect vaporization of fuel • White patented combustion chamber • $7^{15}/_{16}$" frame with 3" flange • White designed rear axle with straddle mounted pinion • Chrome nickel alloy gears • 5 optional truck wheelbases • 2 tractor wheelbases • Oversize 4-wheel hydraulic brakes • Automatic ventilated cab, thickly insulated and fume proof.

IRON, STEEL AND METAL MARKET

THE flood situation in the Ohio Valley slackened activity in the steel industry as February opened, but plants elsewhere have been busy on accumulated orders. January demand exceeded any previous month last year excepting December.

The operating rate of steel companies having 98 per cent of steel capacity of the industry fluctuated between 78 and 80.6 per cent during January. This compared with operations a year ago of about 49 per cent of capacity, according to the American Iron and Steel Institute.

Operations in the Pittsburgh District as February opened were 81 per cent of capacity; Chicago, 76 per cent; Youngstown, 80 per cent, and Birmingham had increased to about 77 per cent. The sit-down strike in the automobile industry caused a slackening in some of the finishing mills supplying the trade.

Composite prices have remained around $20 a ton. During the last week of January, steel scrap declined 50 cents a ton at Pittsburgh, owing to flood conditions, but was up 75 cents at Chicago and $1 at Pittsburgh with export buying continuing strong. In fact, exports of iron and steel products have been gaining for a number of months and there has been a world-wide acceleration in iron and steel activity. British steel ingot production has been at peak level and the industry has been unable to satisfy mounting local demand. Total British output of steel ingots during 1936 was 11,698,000 tons, an increase of 19 per cent over 1935.

Ingot production in the United States in 1936 reached 46,919,000 tons compared with 33,417,000 tons in 1935.

Fabricated steel plate orders amounted to over 470,000 tons as compared with 258,315 tons in 1935.

New business booked by the structural steel fabricating industry, states the American Institute of Steel Construction, during December reversed the seasonal trend and reached the largest volume of the year, excepting July. The volume of new business 71.2 per cent of normal (yearly average 1928-31), bookings of the 12 months of 1936 were 57.3 per cent of normal and 51 per cent greater than in 1935, and shipments were 41 per cent larger than the previous year. Total bookings for 1936 were 1,609,000 tons compared with 1,068,603 tons in 1935 while shipments were 1,548,205 tons compared with 1,095,216 tons in 1935.

Continued Activity in Southern District

In the Birmingham District, mill activity has averaged 77 per cent for some time with sheet and plate mills busy. Steel fabricating plants have orders to keep them fully active for from three to six months. Among recent orders were 2,850 tons of structural steel for the new pulp and paper mill at Port St. Joe, Fla., to the Virginia Bridge Company. Pipe orders have been received from California by the United States Pipe & Foundry Co., the National Cast Iron Pipe Company, and the American Cast Iron Pipe Company. The Pullman & Standard Car Manufacturing Company, at Bessemer, is to build 500 all-steel 40-foot 80,000-pound capacity box cars at a cost of approximately $1,250,000 for the Nashville, Chattanooga & St. Louis Railroad.

The railroads of the country have been increasing buying. They had more new freight cars and steam locomotives on order January 1 than on any corresponding date since 1930. The Baltimore & Ohio Railroad Company recently authorized the purchase of 2,000 gondola cars of 70-ton capacity and also the construction of 2,000 box cars of 50-ton capacity. The Bethlehem Steel Company, which has its Tide Water plant at Baltimore, was the low bidder on the gondola cars and the 2,000 box cars will give employment to the B. & O. shops throughout the remainder of the year. Total estimated cost of the equipment is $10,000,000.

Iron ore shipments last year were greater than production which was the largest since 1930. The iron ore mined in the United States in 1936, according to the Bureau of Mines, was 48,618,000 tons, an increase of 59 per cent over the quantity mined in 1935. The ore shipped from the mines in 1936 was 51,380,000 tons valued at $130,775,000, an increase of 54 per cent in quantity and 57 per cent in value compared with 1935. Shipments were only 6.9 per cent less than in 1930.

Total iron ore production in Alabama was 4,095,000 tons, or 4,125,000 tons for six Southeastern states compared with 3,277,535 tons in Alabama, or 3,298,228 tons mined by the Southeastern states in 1935.

Iron ore shipped in Alabama in 1936 amounted to 4,172,000 tons valued at $6,767,000; the total shipments for the Southeast being 4,204,000 tons valued at $6,855,000. Alabama increased its shipments 612,000 tons and the six Southeastern states showed a gain of 624,000 tons over 1935.

With machine tool orders during December reaching the highest level since 1919, when comparative figures were recorded, the volume is probably equal to the war time boom period. December business was 76 per cent greater than in November and 40 per cent above the 1929 peak. Activity was maintained during January despite the strike situation and the floods. Some recession is expected for awhile.

Taken altogether, the iron and steel industry of the United States, with the United States Steel Corporation, Bethlehem Steel Company and other leaders in the industry reporting better earnings than for several years, has reason to be optimistic.

Myron C. Taylor, Chairman of the United States Steel Corporation says the steel industry entered 1937 with greater confidence than in any year since 1930 and with every indication that it will be a better year than in 1936. Especially gratifying is the increased evidence of demand from the field of railroad transportation and the long pent-up requirements in substantial volume about to be satisfied. The Steel Corporation recently announced that $60,000,000 will be spent in constructing and modernizing mills at Clairton and Homestead, Pa. This followed the authorization of expenditure of about $30,000,000 in the Birmingham district in enlarging steel products facilities.

Prompt Deliveries From Stock (Standard Sizes)

ORIOLE Galvanized Steel Sheets

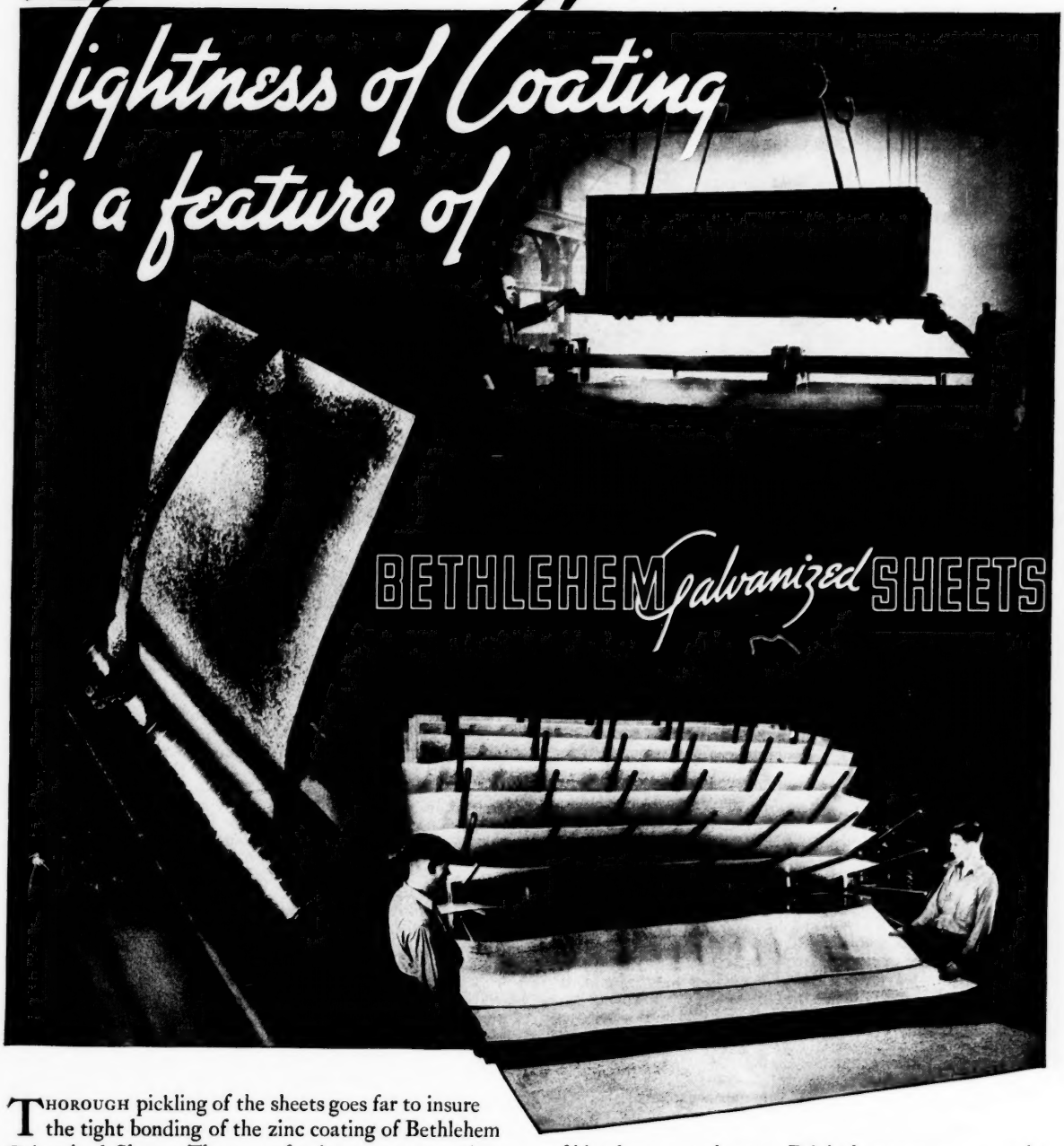
Flat—Corrugated—Roofing

THE EASTERN ROLLING MILL CO.

BALTIMORE, MARYLAND

District Office, Petroleum Bldg., Houston, Tex.

Tightness of Coating is a feature of



THOROUGH pickling of the sheets goes far to insure the tight bonding of the zinc coating of Bethlehem Galvanized Sheets. The use of prime western spelter and careful fluxing and control of temperatures at the galvanizing pot further contribute to both the tightness of the coating and to other good properties.

The zinc is so firmly bonded to the base metal that it doesn't flake or peel under sharp bending. This tightly adherent coating on a base of soft, easy-bending steel makes these sheets especially desirable for any use involving fabricating. It is a uniform coating, too, free of blotches or rough spots. Bright in appearance, evenly spangled, Bethlehem Galvanized Sheets make a fine-looking job in any application.

Beth-Cu-Loy Sheets, which have the same tight coating and good working qualities, bring a further economy in rust-exposed uses. Their copper content (0.20 to 0.30 per cent) makes sheets of Beth-Cu-Loy last from two to two and one-half times longer than sheets without the copper, under exposure to atmospheric corrosion.

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL

EQUIPMENT
NEW AND IMPROVED

2,000-Degree Insulating Brick

Developed for use behind refractory walls in various types of high temperature industrial equipment, including boiler settings, ceramic kilns, steel plant equipment, and practically all types of furnaces, a new type 2,000-degree insulating brick has been announced by Johns-Manville Corporation, New York. The development of this brick, known as JM-20, is the result of research in the company's laboratories of basic raw materials used in refractory insulations, the new product combining a high quality refractory clay with a specially manufactured fibrous, light weight, inorganic aggregate. Weighing less than 1.7 pounds per standard 9-inch equivalent, its heat capacity is unusually low—less than one-fourth that of ordinary refractories, it is declared—and its thermal conductivity less than one-sixth that of fire brick.

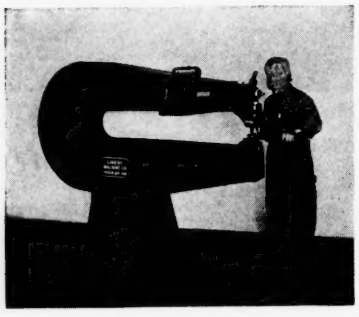
For Painting Equipment and Buildings

The Saylor-Beall Manufacturing Company, Detroit, Mich., announces a low-cost, efficient outfit for painting equipment and plant interiors and exteriors, consisting of a small air compressor, spray gun, and necessary hose and nozzle connections. The spray gun combines both internal and external atomizing nozzles which make it available for various jobs in industrial plants.

Large High Speed Shear

Libert Machine Company, Green Bay, Wis., manufacturers of shears, has completed and shipped a new high speed shear for irregular shapes, constructed primarily to cut 12 gauge stainless steel or alloys of similar types. Known as Model 1060, this large shear is made with an all-steel frame fabricated and welded instead of the usual cast iron frame. It has a throat depth of 60 inches, instead of the usual 36, and will maintain the same cutting speed as the standard shear, according to the manufacturer. Hand control is provided only to permit inside cutting without starting holes.

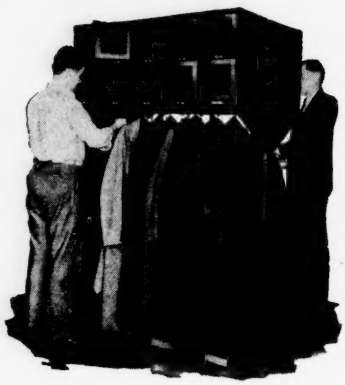
High Speed Shear



Innovation in Locker Field

A new idea in the way of equipment for storing employes' clothing in manufacturing plants and commercial institutions has been developed by Lyon Metal Products, Inc., Aurora, Ill., in the manufacture and introduction of the Shoprobe. This innovation in the locker field may be used in the general locker room or moved about to take care of various departments

"Shoprobe"



where conditions change periodically. The new piece accommodates 20 persons with a separate lockable compartment for personal belongings. It is of heavy, all-steel construction.

Asbestos Cord Steam Hose

As a new addition to its line of steam hose, United States Rubber Products, Inc., Mechanical Goods Division, New York, announces the U. S. Royal Asbestos Cord Steam Hose Official P-6031. The hose is constructed of quality steam and heat resisting tube, four plys of high strength asbestos cords wound spirally in alternating directions, with cords cushioned in a layer of rubber and wrapped in a heat-resisting rubber cover. It is made of ½-inch, ¾-inch, 1-inch, 1¼-inch and 1½-inch I. D. sizes, accommodating pressures ranging from 175 pounds to 200 pounds.

Heat Indicating Paint

Prepared in two types—exterior and interior—a "new paint for a new kind of service" has been introduced by The Efkalin Company, New York. These paints change color when exposed to heat, offering production and maintenance engineers a new medium through which they may detect serious deviation in temperature and processing equipment, power machinery transmissions, etc. A series of five permanent changes and seven retroactive color paints are available.

New Mechanism for Circuit Breakers

General Electric Company, Schenectady, N. Y., announces an improved operating mechanism for the Type FH line of oil circuit breakers, designated the MK-110 and superseding Type MK-10. By increasing the opening springs and modifying the trip-mechanism to reduce friction, faster time is obtained. This permits rating all breakers—600 amperes to 4,000 amperes—at eight cycles. Other improvements include: easily operated hydraulic device: modified centrifugal mechanism; improved cut-off switch, etc. The mechanism is portable and may be operated by one hand.

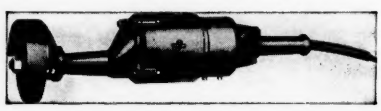
Lycoming Offers More Light and Power at Half Cost

With a recent announcement by the Lycoming Manufacturing Company, Williamsport, Pa., of a gas motor generating unit engineered for 100,000 hours of continuous duty, the thought is advanced that electric light and power out of a gas pipe is, perhaps, the newest way yet devised to enable manufacturers to cut light and power bills. The development of the Lycoming natural gas motor of high efficiency and low operation cost, together with an entirely automatic generating unit, is claimed to make tremendous savings possible. The unit requires little attention, is easy to install and needs only the connection of a gas pipe to the motor. Sizes range from 10 K. W. to 60 K. W., generating either alternate or direct current. Quiet, clean and vibrationless, the gas motor produces no smoke or odor and runs cool. With the generator, it is built into the base as a single unit, and when used as stationary motor to replace electric motors of from 10 to 50 H. P., it operates at very low cost.

For General Purpose Grinding

Designed for all-purpose grinding and, with proper wheel equipment, for wire brushing, buffing and polishing of all types of metal surfaces, No. 970G Grinder has been announced by Chicago Pneumatic Tool Company, New York. This product, which is described in Bulletin No. 899, Universal Electric Tools, is said to effect notable wheel economy because of power sufficient to maintain high speed under load, and is free from dust troubles and over-heating because of its totally enclosed, fan-cooled motor. All bearings are of the ball-bearing type—mounted in steel inserts and cast integral.

For 5" and 6" Grinding



BLAW-KNOX IRVING

Open Bridge Decking

Blaw-Knox Irving Open Bridge Decking has all the characteristics lacking in other types of bridge flooring

Cost — The lowest cost deck for all bridges from the standpoint of safety, comfort, lasting qualities and self maintenance—and the lowest cost deck for Bascules from any standpoint.

Minimum Maintenance — Occasional painting is the only maintenance required.

Light Weight—The lightest weight bridge deck known.

Safety — Cars cannot skid on Blaw-Knox Irving Decking and will decelerate in half the distance required with other types of pavement.

The above are just a few of the many reasons for specifying this modern decking for both new construction and reflooring jobs. Send for the Blaw-Knox Irving Bridge Decking Book. It gives complete details.

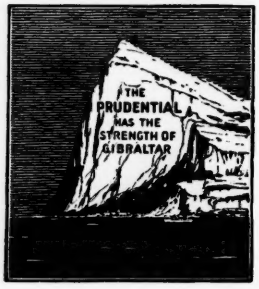
Where Blaw-Knox Irving Decking is in use—

University Bridge, Seattle, Wash.
Nine Mile Run Bridge, Pittsburgh, Pa.
Summit St. Bridge, Lockport, N. Y.
Kellam Stalker Bridge, Hankins, N. Y.
Park St. Bridge, Oakland, Cal.
Malden Bascule Bridge, Malden, Mass.
Wellington Bridge, Boston, Mass.
Fremont Ave. Bridge, Seattle, Wash.
Cherry St. Bridge, Toledo, Ohio
Mystic River Bridge, Groton, Conn.
Stringham Bridge, Lagrange, N. Y.
Swamp Road Bridge, Red Hook, N.Y.
Farrington Bridge, Marshfield, Vt.
Lagoon Bridge
Martha's Vineyard, Mass.
Forsythe Ave. Bridge
East Chicago, Ind.
Charles River Dam Bridge
Boston, Mass.
Marine Parkway Bridge
Long Island, N. Y.

BLAW-KNOX COMPANY

2043 FARMER'S BANK BUILDING • PITTSBURGH, PENNA.

What if your firm lost Mr. Key?



If he is your active partner, or the equivalent in your incorporated concern, you should insure against the contingency of this heavy loss.

Business insurance folder upon request

THE PRUDENTIAL
INSURANCE COMPANY OF AMERICA
EDWARD D. DUFFIELD, President
HOME OFFICE. NEWARK, N. J.

FINANCIAL NEWS

Easy Money

A TERM used in two senses in financial circles. It implies that money may be obtained on proper collateral at extremely low rates of interest and by reason of the fact that there is a plentitude of it. The quantitative theory of money thus applies today and steadily rising commodity prices and rates for labor are a result. It explains in part also the ominous number of strikes and threatened strikes throughout the country, although there are other reasons for them.

Under ordinary circumstances, with the country emerging from panic conditions and rapidly developing into a state of activity, money rates would have gone up before this. The banks have more money than they can use, as financial writers frequently point out.

The ground work is laid, if not actually at present operating, for credit inflation. The outcome can be controlled, and doubtless will be controlled, but in the meantime, we have in security markets, prices of bonds and stocks going up at the same time, which in former days would have been considered an anomaly. The latter part of last month, short term Treasury obligations were sold to bring about 0.373 per cent interest.

Railroads

RAILROADS are doing much better. Reports coming through indicate that 1936 has been the best year for the carriers for a long time. One example is the Baltimore and Ohio Railroad which showed an increase in gross operating revenues in the one month of December of nearly $3,000,000 which was a 25 per cent increase over December, 1935; while the net operating income for the same month as compared with 1935 increased more than one-third. For 12 months the net increase was practically 25 per cent.

That the showing made by the railroads would have been much better if they had been hampered less by restrictive laws is clear. A press release from the Association of American Railroads says:

> "The transportation industry is in a state of siege. It is attacked on every side of zealous crusaders. * * * One group insists railroads should not be permitted to pay their debts. * * * The theory is solvent railroads should be forced to repudiate their solemn obligations by denying to those who have invested savings in railroad securities the right to exact payment."

This in spite of the fact that the total par value of outstanding stocks and bonds of railroads are five billion dollars less than the actual value of the property upon any recognized basis of valuation. The statement adds:

> "Not only should the zeal of the reformer leave undisturbed the capital structures, but there should be a cessation of legislation, the sole effect of which is to load the carriers with a burden of increased expense, with no corresponding benefit to the public.
>
> "It is sheer folly to man the trains with employees that are not needed, or limit the length of trains according to artificial, arbitrary standards, or shorten the work day to the point where leisure is more abundant than health and sane living require."

Confidence Not Complete

THE pressure of investment funds seeking a profitable outlet is so strong as to cause savings

(*Continued on page 58*)

NATURAL GAS

Contributes to the Welfare and Progress of

Alabama, Mississippi, Georgia

its widespread use in the home has brought health and comfort. Its use in industry has aided in the maintenance of employment and payrolls, thus increasing values and wealth in the territory we serve.

SOUTHERN NATURAL GAS COMPANY

WATTS BUILDING BIRMINGHAM, ALABAMA

Exceptional location between Baltimore and Washington for

Modern Steel Houses Offer Amazing Possibilities

LOW-COST HOUSING DEVELOPMENT

The Washington Administration is demanding more housing projects for people of moderate means.

Here's an answer to relieve housing congestion in Baltimore and Washington: At Glen Burnie, 340 acres of rolling hills and stately oaks will enable many families to carry out long-cherished ambitions for modern homes at low cost with latest methods of lighting, heating and general appointments.

The influx of government employees and workers to Washington and Baltimore is creating a demand for more houses which can be located admirably at Glen Burnie.

Modern inter-urban transportation and a new dual highway under construction bring within a stone's throw an unmatched group of cities—Washington, Baltimore and Annapolis.

Write for landscape plat and detailed information. An especially attractive offer will be made to a responsible applicant.

THE GLENBURNIE DEVELOPMENT COMPANY

1409 L Street, N. W., Washington, D. C. GEORGE B. FURMAN, President

CONFIDENCE

Industrial buyers, retailers, and domestic consumers all attest to the fact that ACI Quality Coals deliver full satisfaction in power plant, factory, and home.

ACI Quality Coals are mined from the finest bituminous deposits in the world . . . the high volatile fields of Kentucky, Tennessee, Virginia, and West Virginia . . . are properly sized . . . carefully cleaned . . . accurately priced. Appalachian Coals, Inc. and its agents stand back of these standardized products, offering Appalachian Service in more than 20 states.

For fuel satisfaction and your money's worth . . . specify ACI Quality Coals. Authorized agents are listed in "Where to Buy ACI Coals." Write for your copy.

If you would have confidence in the coals you buy, then purchase ACI Quality Coals.

APPALACHIAN COALS, INC.
TRANSPORTATION BUILDING
CINCINNATI, OHIO

DRAWING MATERIALS
Drawing Instruments, Slide Rules, Planimeters, Drawing and Tracing Papers, Drafting Room Furniture, Surveying Instruments, Tapes.
PIGMENT Waterproof Drawing Ink
in black and white and a wide range of opaque colors.
Catalogue sent on request. Inquiries solicited.
F. WEBER CO. 227 PARK AVENUE
Est. 1853 BALTIMORE, MD.

THE GEORGIA MARBLE COMPANY
Producers and Manufacturers of
GEORGIA MARBLE
TATE, GEORGIA
Atlanta · Chicago · Cleveland · Dallas · New York

THE STAGE IS BEING SET

America is preparing for a notable industrial advance. Is your business prepared to take advantage of it?

•

Correspondence invited

BALTIMORE COMMERCIAL BANK
GWYNN CROWTHER, *President*
BALTIMORE, MARYLAND
Member Federal Reserve System—Member Federal Deposit Insurance Corporation

Financial News

(*Continued from page 56*)

banks and others to use extraordinary ways for the mortgage borrower to favor private lending sources instead of Government.

In metropolitan areas, loans for less than 60 per cent of the property value it is said can be obtained at a lower cost than that charged by the FHA, taking into consideration the total charges. Some banks are waiving the service charge and by reducing the insurance as the balances are lowered this expenes is cut.

The problem of investment institutions, fiduciaries for trust estates and private capitalists does not grow less under present conditions. When financing of expanding industry is taken up with confidence, which will come sooner or later, the surge forward undoubtedly will pass all previous records. It is undeniable, with the betterment that has taken place in business apparent on all sides, there is still a lack of confidence that would cause an outflow of capital into the channels of industry.

Social Security Financing

THE statement that the Treasury Department will sell $45,000,000 of 3 per cent bonds monthly this year to the Old Age Reserve Account is likely to materially change methods heretofore used in Government financing.

For a long time to come, estimated by some as being several decades, the receipts from the tax on payrolls will largely exceed the expenditures for benefit payments. In the current year it is expected the total receipts will be over $260,000,000.

The obligation of the law is to invest whatever the sum may be in bonds guaranteed by the Government to yield 3 per cent. Nothing with that yield is available, so the Treasury finds it necessary to issue new obligations for the purpose. By selling these, the result will be to increase Federal funds tremendously. Will these funds be used for redemption of other Treasury obligations?

There are other funds being received by the Treasury from various States as unemployment insurance reserve funds. These are being invested in special certificates of indebtedness adding to the amount that can be called upon for the redemption of Treasury obligations.

The Sit-Down Strike

OF particular interest to business men at the present time is the unlawful occupancy of plants by sit-down strikers. What was once termed trespassing, and which still should be so regarded, may be turned into lawful occupation.

It is said that a bill is to be introduced in the Pennsylvania legislature, and maybe a similar bill in other States, to make it lawful for strikers to occupy plants, by force, while not working.

If the policy of sit-down strikes is extended far enough we will have to adjust our views of property rights.

Men say, "It can' happen here." It can, and will, if and when law enforcement breaks down, or if sane laws are changed to idiotic ones.

Practical Help

THE New York Life Insurance Company adopted special measures to assist policy holders in flood stricken sections of the country. Branch office managers were authorized to grant, at their discretion, 30 days additional credit for premium payments, without interest; also to make loans to policy holders up to $200, without formality of sending applications to New York.

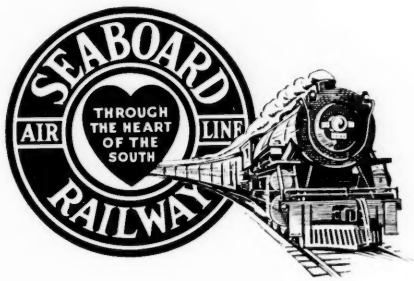
SELECTING A PLANT LOCATION

The success or failure of an industrial enterprise may hinge upon the choice of the plant location. The final selection of a site should be made only after a thorough consideration of all pertinent factors in the light of the particular requirements involved.

If you are interested in investigating the advantages for manufacturing in the Southeast, the Industrial Department of the Seaboard Air Line Railway can save you much time and money. For many years we have made a careful study of this territory, during which time we have accumulated exhaustive data on natural resources and manufacturing conditions.

In the six states served by the Seaboard are many communities which possess the prime requisites for diversified manufacture. We are prepared to recommend specific locations and to furnish information on raw materials, plant sites, water supply, fuel, power, labor, shipping facilities and other factors of pertinent interest. Whatever your branch of industry, we have locations suitable for your requirements.

The services of this department are available to interested executives without obligation or cost. All inquiries and negotiations are held in strict confidence. Write, wire or telephone—



WARREN T. WHITE, *General Industrial Agent*

SEABOARD AIR LINE RAILWAY

Norfolk, Virginia

INDUSTRIAL NEWS

Portland Cement Association Appointments

W. M. Kinney, general manager of the Portland Cement Association, Chicago, Ill., announces the appointment of E. M. Fleming as regional manager of its Eastern offices in New York, and H. J. McDargh as Southeastern regional manager, Atlanta, Ga.

Jenkins in Charge of Gar Wood Manufacturing

Resigning as general manager of the St. Paul Hydraulic Hoist Company, Minneapolis, Minn., Ralph S. Jenkins has been appointed vice president of Gar Wood Industries, Inc., Detroit, Mich., in charge of manufacturing of all its divisions.

New York Belting and Packing Appointment

New York Belting and Packing Company, Passaic, N. J., appointed J. W. Webster as sales manager of the South Atlantic District with headquarters in Atlanta, Ga. Until recently Mr. Webster had his headquarters in Richmond, Va. Territory in the South Atlantic District comprises the states south of Pennsylvania, eastern Kentucky and Tennessee, and east to the Atlantic Ocean.

Joins Pennsylvania-Dixie Cement Corporation

J. R. Fairman becomes Assistant to the Vice President of Pennsylvania-Dixie Cement Corporation, New York, according to Walter S. Wing, Vice President. Since 1920 he has been associated with the Portland Cement Association, resigning his position as Regional Manager in charge of the Eastern Offices of the Association in New York, to form his new connection.

Celotex Opens New Orleans Office

Through its general sales manager, Harold Knapp, the Celotex Corporation, Chicago, Ill., announced the opening of a branch office at 837 Gravier St., New Orleans, La., with A. C. Williamson, Manager, and George J. Dinges, Assistant Manager. The New Orleans Division will cover Louisiana, Alabama, Georgia, Florida, Texas, with the exception of six western counties which will remain in the West Coast Division; and the southern part of Mississippi. These states were formerly a part of the Philadelphia and St. Louis division.

Tenth Repeat Order for Motor Coaches

The American Car and Foundry Motors Company, New York, has received the 10th repeat order from the Capital Transit Company, Washington, D. C., for 23 a.c.f. motor coaches powered with Hall-Scott horizontal engines, bringing the total number of a.c.f coaches on this operation to 107.

Compensation Insurance Indicates Greater Industrial Activity

Charles E. Hodges, Jr., president of the American Mutual Liability Insurance Company, Boston, Mass., asserts "analysis of American Mutual's workman's compensation insurance premiums for 1936 indicates that payrolls, and therefore industrial activity, in the Carolinas were considerably greater than those of the country as a whole." In these two states total premiums on workmen's compensation in 1936 were approximately 35 per cent greater than during the preceding year, while the percentage increase for the entire country was approximately 25 per cent. Mr. Hodges announced that the formal celebration of the fiftieth anniversary of the company, the first American liability insurance company, would be held in Boston April 21.

Morrison in Charge of Crane Birmingham Office

Crane Co., Chicago, Ill., announces the appointment of F. D. Morrison as manager of its branch at Birmingham, Ala., succeeding J. G. Johns, who has been put in charge of the new Southeastern sales district, one of two, recently established by the company.

New Ajax Sales Office

Ajax Flexible Coupling Company, Westfield, N. Y., opens a new sales office in Louisville, Ky., bringing the number of its sales offices throughout the country to 21. The company's line of flexible couplings and reciprocating screen drives will be handled in Louisville by Alfred Halliday with headquarters in the Starks Building.

Koppers Company Appointments

President J. T. Tierney of Koppers Company, Pittsburgh, Pa., announces the appointment of Stanley N. Brown and Robert H. McClintic as assistants to the president, the former to handle financial and executive matters and the latter to have charge of advertising and sales promotion for the company and its subsidiaries, except advertising for the company's coke plants. The name of Koppers Gas and Coke Company recently was changed to Koppers Company, and several subsidiaries and their divisions were made divisions of Koppers Company.

Stewart Iron Works Officials

At the annual meeting of The Stewart Iron Works Company, Cincinnati, Ohio, Richard C. Stewart, president and founder of the company, was made chairman of the board; Robert S. Stewart, president; Charles L. Costello, vice president; W. S. Rich, secretary; S. M. Stewart, assistant secretary, and C. A. Alpin, treasurer. Reports submitted by various department heads reflected a substantial increase in sales volume for 1936.

(*Continued on page 62*)

MODERNIZE

with the

CUTLER MAIL CHUTE

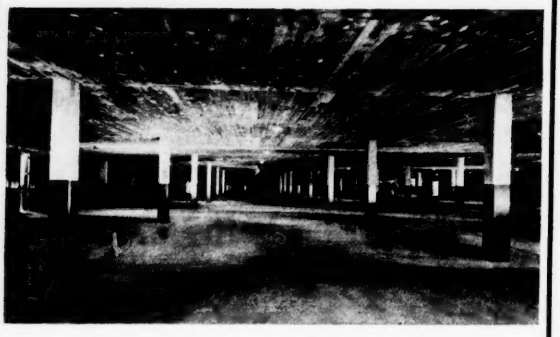
Over fifty years of experience and improvement in Manufacturing Equipment, Product and Service have made the Cutler Mail Chute an outstanding *Hall-mark* of progressive management in office buildings, hotels and apartments.

It is an indispensable feature of the equipment of Public Buildings.

Information and details furnished on request.

CUTLER MAIL CHUTE CO.

General Offices and Factory, ROCHESTER, N.Y.



ALL FLAT CEILINGS
FOR INDUSTRIAL BUILDINGS
SAVE SPACE--SAVE MONEY

INVESTIGATE THIS NEW TYPE OF FLOOR CONSTRUCTION BEFORE YOU BUILD AGAIN

FOR INFORMATION ADDRESS

SMOOTH CEILINGS SYSTEM-PTD.
802 MET LIFE BLDG., MINNEAPOLIS, MINN.

"Yes Sir— THIS IS THE ARMCO DISTRIBUTOR"

WHEN YOU 'PHONE your order for sheets to the nearby Armco Distributor, things begin to happen. And this also goes for a request for assistance or information. Ready iron and steel is only a part of the job. Their interest goes beyond the successful application of the metal.

Armco Distributors carry ample stocks of all the commonly used grades of iron and steel sheets. They also are organized to give you the kind of service you want. Naturally, they are proud of the quality of the sheets they supply.

Put the Armco Distributor at the top of your purchasing list, and he'll live up to the honor—by giving you the right kind of sheet metal *when* you want it. The American Rolling Mill Company, Executive offices, 703 Curtis St., Middletown, Ohio. District offices all key cities.

ARMCO

ARMCO SHEET METALS

A GRADE FOR EVERY NEED

STRUCTURES THAT ENDURE

Salt treated sub-flooring laid on Creosoted stringers and nailing strips, each treated by our Pressure Process.

Statistics show that Wood, when used Untreated, is subject to deterioration through Dry Rot and Insect attack, resulting in costly Replacements and Repairs.

Eliminate the need for these expensive Replacements and Repairs by the use of Structural Timbers preservatively treated by our Pressure Processes with Standard, approved chemicals. Treated Wood has many times the life of Untreated Timbers and will give a lifetime of satisfaction with low maintenance costs.

Our Pressure Treating Plants are conveniently located to promptly serve you at advantageous freight rates.

Detailed Information, Prices and, if necessary, the services of one of our Engineers may be had without cost to you, by writing our territory Sales Office or communicating direct with

THE WOOD PRESERVING CORPORATION

Koppers Building **Pittsburgh, Pa.**

AYER & LORD DIVISION CENTURY DIVISION

Affiliate

NATIONAL LUMBER & CREOSOTING CO.

SALES OFFICES

Baltimore, Md. . . Boston, Mass. . . Charleston, S. C. . . Chicago, Ill. Columbia Park, O. . . Denver, Colorado . . Houston, Texas . . Kansas City, Mo. . . Marietta, O. . . Memphis, Tenn. . . Montgomery, Ala. New York, N. Y. . . Newport, Del. . . Philadelphia, Pa. . . Pittsburgh, Pa. Reed City, Mich. . . St. Louis, Mo. . . Superior, Wis. . . Texarkana, Ark.-Tex.

INDUSTRIAL NEWS

(*Continued from page* 60)

Link-Belt Appointments

Erwin A. Wendell has been appointed Link-Belt district sales manager in St. Louis, Mo., with offices at 317 N. 11th street, by Link-Belt Company, Chicago. He succeeds Howard L. Purdon who has been transferred to the company's Chicago plant to assume sales responsibilities in the Chicago territory.

Worthington Orders Largest in Seven Years

Worthington Pump and Machinery Corporation, Harrison, N. J., reports entering the new year with the largest backing of unfilled orders since 1930. Coming from a manufacturer of a wide range of equipment for the construction, power, water supply, refrigeration, and air conditioning fields, this announcement would indicate the resumption of large scale activity in the so-called "durable goods" or heavy machinery industry.

ARMCO Stainless Steel in Packing Plant

In the construction of the new and modern plant at Albany, Ga., of Cudahy Packing Company, Kansas City, Mo., more than 3800 pounds of Armco stainless steel produced by the American Rolling Mill Company, Middletown, Ohio, were used on the exterior. All cornices and coping are of 18-8 stainless steel, effecting a brilliant outline against the sky. Exterior walls are of tile and glass brick. Fabricating was done by the Albany Sheet Metal Products Company.

Beth-Cu-Loy Sheets Resist Rust

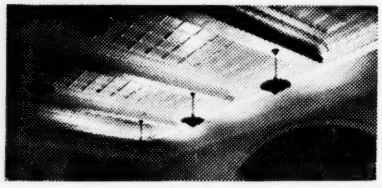
To guard against rust, the Frick Company, Waynesboro, Pa., is building housing for threshing machines of Beth-Cu-Loy galvanized sheets made by Bethlehem Steel Company, Bethlehem, Pa. The base metal in these sheets is copper-bearing steel, which is declared to have from two to two and one-half times the life of ordinary steel when exposed to atmospheric corrosion.

Inventors Congress and Exhibit

Manufacturers Research Institute, Incorporated, 624 South Michigan Avenue, Chicago, announces a five-day Conference and Exhibit of New Inventions now being planned by the National Inventors Congress which will convene in Chicago, March 29 to April 2.

Ford Betters "Million-Car" Year

For the eleventh year in the past seventeen years, the Ford Motor Company, Dearborn, Mich., in 1936 had better than a "million-car" year in production. In 1936 both world sales and world production largely exceeded the million-car mark, the former reaching a total of 1,219,262 units, including trucks and cars, and the latter reaching a total of 1,194,800 units.



APPLY

EDWARDS STEEL CEILING

For Protection, Beauty and Economy

Cracking and scaling of plastered walls and ceilings is a danger signal. Either the "key" is broken or the plaster has begun to disintegrate. Dust and chips will dribble down on customers, employees and merchandise. Falling chunks may result in serious injury.

Apply Edwards Steel Ceiling, on new construction or over old surfaces. End all dangers, reduce fire risk and modernize your building at low cost and without interruption to normal business. The cost is amazingly low.

Write for Catalog 180. *Send measurements for estimate.*

THE EDWARDS MANUFACTURING CO.

411-431 Culvert St. Cincinnati, Ohio

TRADE LITERATURE

MYERS PRODUCTS—
Catalog 69, devoted to line of pumps, hay tools and door hangers with information brought up to date on improvements for 1937.
The F. E. Myers & Bro. Co., Ashland, O.

FOUR WHEEL DRIVE TRUCKS—
Booklet, 16 pages, illustrated, featuring the economy of FWD trucks.
Four Wheel Drive Auto Co., Clintonville, Wis.

WATER WELL SUPPLIES—
Catalog 320, describes COOK products for water wells.
A. D. Cook, Inc., Lawrenceburg, Ind.

REDLER CONVEYOR-ELEVATOR—
Catalog—illustrating and describing Redler conveyor-elevators for handling cement and similar materials.
Stephens-Adamson Mfg. Co., Aurora, Ill.

ALUMINUM PAINT—
Booklet—illustrating and describing Permite Ready-Mixed Aluminum Paint and pointing out its many advantages for every specialized maintenance or product painting requirement.
Aluminum Industries, Inc., Cincinnati, Ohio.

ARMCO GALVANIZED PAINTGRIP—
Folder — illustrating the application of Armco Galvanized Paintgrip, a new Armco galvanized sheet metal readily paintable without special acid treatment or weathering, available in base metals of Armco Ingot Iron, copper-bearing steel of plain steel.
The American Rolling Mill Company, Middletown, Ohio.

PRESERVING WOOD—
Folder 109—entitled "Before Rot Begins," describing the application of "Avenarius Carbolineum" for the preservation of wood and outlining its advantages.
Carbolineum Wood Preserving Company, Inc., Milwaukee, Wis.

TUNG OIL PRODUCTION METHODS—
Bulletin—entitled "Culture of Tung Oil Trees in Louisiana," outlining interesting points in the culture of this crop in the state.
Louisiana State University, Agricultural Experiment Station, Baton Rouge, La.

(*Continued on page* 70)

There are—

Opportunities in

FLORIDA

for investment—

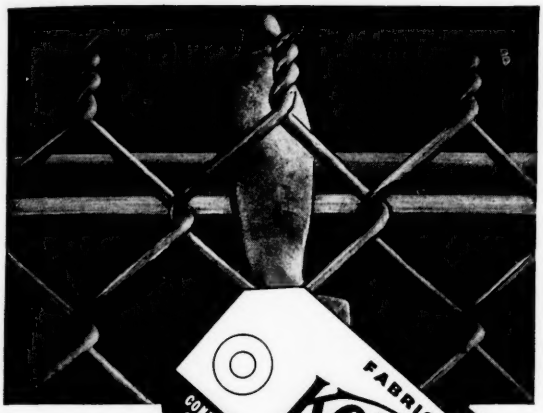
To learn of the many and varied opportunities for investment one should visit Florida and make a personal survey of the different sections of the State—

For undeveloped farm and grove lands, industrial sites and beach property on the East Coast of Florida—consult—

Model Land Company

Flagler System

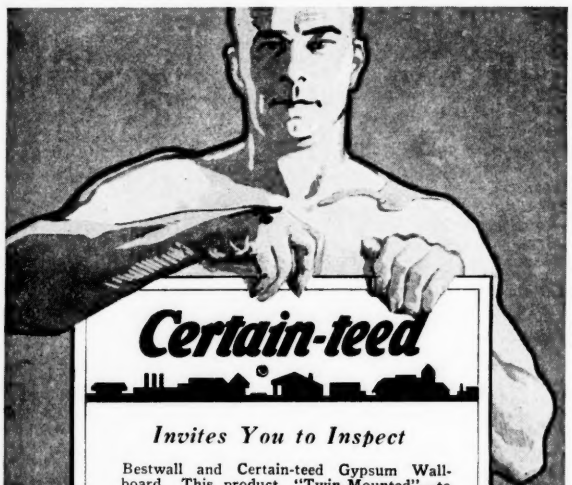
St. Augustine—Florida


FABRIC OF
KONIK
STEEL
CONTAINING COPPER, NICKEL, CHROMIUM FOR GREATER STRENGTH AND RUST RESISTANCE
MFD. UNDER U.S. PATENT NUMBER 1211813

Here is the only fence fabric made of the new patented KONIK steel— a stronger steel that is rust-resistant clear through . . .; Continental galvanized—heavy, uniform coating. Get new manual, "PLANNED PROTECTION" free on request:

CONTINENTAL STEEL CORP.
Kokomo, Indiana
Plants at Kokomo, Indianapolis, Canton

CONTINENTAL *Chain Link* FENCE



Invites You to Inspect

Bestwall and Certain-teed Gypsum Wallboard. This product, "Twin-Mounted"—to keep the faces clean now comes with "Nailing Marks"—inconspicuous dots which help to locate the studs no matter how far apart they are spaced. For full information, call one of the following:

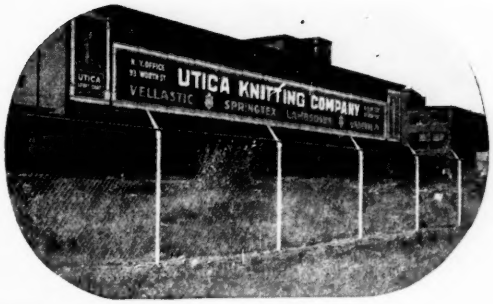
SALES OFFICES

Atlanta, Georgia, 1111 Rhodes Haverty Bldg.
Baltimore, Maryland, 1309 Lexington Bldg.
Certain-teed Products Corp. of Va. Ninth and Main Sts., Richmond, Va.

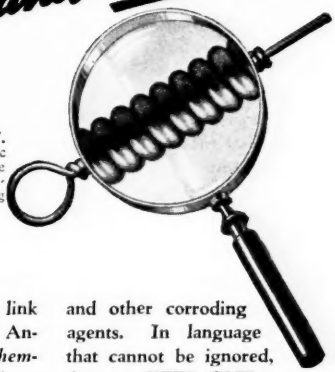
Visit our Plant at Savannah, Georgia

CERTAIN-TEED PRODUCTS CORP.
General Offices .....New York, N. Y.

SOUTHERN MADE FOR SOUTHERN TRADE



This Fence Lasts Longer because *it can Stand the Wrap*



CORROSION IS SEALED OUT. This new Stan-rap Wire, "a zinc wire with a steel core," can be wrapped around its own diameter without breaking or flaking its smooth, ductile zinc coating.

UNLIKE other chain link wire, the zinc coating on Anchor's Stan-rap Wire is *chemically pure*—free from vulnerable iron content. It is smooth and uniform—no rough or thin spots—no cracks or crevices through which corrosion can creep in. And it is extremely ductile—not hard, brittle or flaky. Twist Stan-rap Wire, bend it double—you can even *wrap it around itself* and the pure zinc coating will not break or flake, exposing the steel core to corrosion.

As a result, Anchor Chain Link Fences of Stan-rap Wire last for many years beyond the lifetime of ordinary chain link fencing—even in atmospheres heavy with soot, salt, sulphur and other corroding agents. In language that cannot be ignored, they say KEEP OUT to trespassers and idlers. They guard raw materials stored outdoors, provide for more efficient control of employes' time, and afford staunch protection against outside disturbance of regular routine.

Get the facts now about these better looking, longer lasting Anchor Fences. Consult "Where to Buy It" in your classified telephone directory for the address of your local Anchor Fence Sales and Erecting Service—or mail the coupon today for our free Industrial Fence Specification Manual.

ANCHOR *Fences*
OF STAN-RAP WIRE

—Mail the Coupon Now—

ANCHOR POST FENCE CO.,
6622 Eastern Ave., Baltimore, Maryland.
Send me your free Specification Manual of Anchor Chain Link Fences.

Name.....Title.....

Firm.....

Address.....

PREVENTING STREAM POLLUTION FROM ABANDONED COAL MINES

Southern States Join Mine Sealing Program

By

A. W. von Struve

TWO Southern states, West Virginia and Kentucky, are among those in which sealing of abandoned coal mines—to reduce stream pollution by sulphuric acid discharged in water flowing from abandoned coal mines—is in progress. Their participation in this work, which is a joint venture of Federal and State agencies, is in cooperation with Ohio and Pennsylvania in the general campaign to relieve streams tributary to the Ohio River of acid pollution which has grown to be a serious menace during the last decade. Independent of the Ohio River watershed program are mine sealing projects in three other Southern States, namely, Tennessee, Maryland and Alabama, but the work there does not compare to the proportions of the activities being conducted in the other states mentioned.

13,500 Abandoned Mines

Flow of sulphuric acid laden waters from 1527 abandoned coal mines of the Ohio River watershed has been reduced materially as a result of two years of cooperative effort against stream pollution in Ohio, Pennsylvania, West Virginia, and Kentucky. Projects to further stem the flow of acid waters into tributaries of the Ohio River continue in operation, with the ultimate goal of sealing as many as possible of the 13,500 abandoned mines estimated to be located in the affected territory. Openings in each mine vary from a few to 500. Jointly active in this gigantic task are Federal and State agencies. The first group includes the Works Progress Administration, the U. S. Public Health Service, the U. S. Army Corps of Engineers, and the U. S. Bureau of Mines. State agencies cooperating include state public health services and conservation commissions.

47,000 Openings Sealed

The closing of more than 47,000 openings, sealing the abandoned coal mines, is reported in latest information from offices of WPA administrators in the states involved. Results already obtained show that the flow of sulphuric acid into streams has been reduced to such an extent that millions of dollars worth of damage, suffered annually before the inauguration of the mine sealing program, has been averted. Importance of the mine sealing work is illustrated by the fact that in the past some 3,000,000 tons of sulphuric acid flowed into these streams every year, causing damage estimated at $10,000,000 dollars. Creeks and rivers were stripped of all fish life, water was unfit for drinking or watering stock, plumbing, water works, and industrial plants were severely damaged, boats, bridges, and dams were seriously corroded. Every citizen of this area was affected in some manner by this dangerous condition.

Army engineers emphasized the danger of this river pollution after a study made in 1925. The acid, they reported, was formed by the action of air on water flowing over iron pyrites, marcasite, and other minerals contained in the coal beds. They found that if the mines were sealed against the entry of air, no sulphuric acid could be formed.

But this required money, and the legislatures of the various states involved took no steps to appropriate funds for this highly necessary and expensive project. However, the officials of the Federal Works Program recognized the acuteness of the situation, and made plans to combat this river pollution. Work was first begun under the Civil Works Administration, continued under the Federal Emergency Relief Administration, and now under the WPA is progressing so rapidly that benefits already have been noted. It is indicated that when the program is completed, the larger percentage of the acid discharge will have been eliminated.

Method of Operation

The abandoned coal beds had to be sealed by the erection of masonry walls against the entry of air, thus preventing oxidation of the water passing over the iron pyrites and marcasite which resulted in the sulphuric acid discharge. It was not a simple process because experiments have demonstrated the fact that these mines must not be completely sealed against the escape of water. Where this had been done, new openings were made by the hydraulic combustion going on within the mine. Consequently, it was necessary to construct a trap that would permit the water to flow off, and yet seal the mine against the entrance of air.

Notable Improvement

According to E. S. Tisdale, State Sanitary Engineer, the mine survey in West Virginia revealed 2212 mines, of which 613 were active, 214 were marginal, and 1368 were abandoned. More than 500 of the abandoned mines had been sealed by November 1, 1936, by approximately 750 workmen who closed over 3600 openings. Mr. Tisdale estimates that it will require two more years to complete the work of sealing all the abandoned mines. Sealing these mines has reduced the daily acid load from 467,000 pounds of concentrated acid to 102,000 pounds daily. In excess of 1000 miles of streams on the watersheds of Potomac, Cheat, Tygart, West Fork, Monongahela, Little Kanawha, Kanawha, Guyan and Tug Rivers are benefitting from the reduced acid load.

Observations on the Cheat River illustrate the improved conditions. In the drouth of 1930 when the Kingwood, West Virginia, water supply, which was derived from springs, dried up, it was found that the water of the Cheat River had a high acid content rendering it unfit for use. In the drouth of 1936, the reduced acidity of this same river water made its use possible.

Industrial use of the water had also been improved as demonstrated by the Chesapeake and Ohio Railway at its water treatment plants in the Logan area on Whitman Creek. The same railway reported definite lessening of the acid in Ten Mile Creek in Harrison County near Clarksburg. Noting the practical success of the work in these proofs, mining companies have lent their cooperation. This is very important because it means that we will no longer have these conditions to combat from mines abandoned in the future.

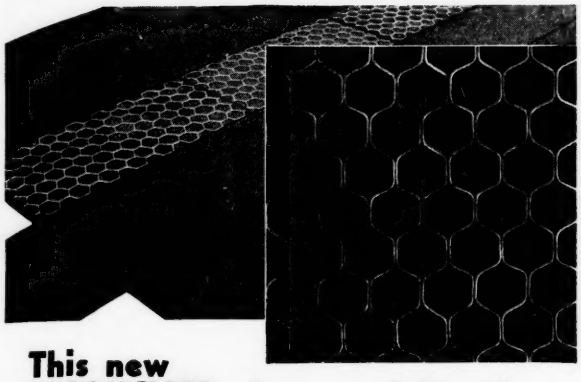
It is predicted by state officials that navigation on the Monongahela, the Kanawha, and the Ohio Rivers will gain definite financial benefits by the lowering of the rate of deterioration on parts of Federally owned locks and dams, as well as on the steel barges which ply these rivers. In addition, lands bordering these waters are now becoming more valuable for agricultural and grazing purposes since a great deal of the acid discharge has been eliminated.

A. T. McCormack, State Health Commissioner, reports that 110 mines have been sealed in Kentucky, entailing about 633 closures. Seventy more mines are now in the process of being sealed, and he estimates that there are 4100 more mines that should be sealed. Work is going on in 24 counties, while in 14 others there is no available labor. Approximately 50,000 pounds of acid waste per day has been eliminated because of the work done up to this time.

The Kentucky Department of Health reports that exceptional cooperation and support have been received from mine operators and surface owners, and that a substantial percentage of materials used in the sealing of the mines has been contributed by them.

The greatest activity in the mine sealing projects has taken place in Pennsylvania where work has been carried on in 22 counties. Approximately $1,500,000 has been allotted for the projects, and 1700 men are continuously employed. Latest figures reveal that 208 mines have been completely sealed, while work continues on 139 others. Total closures already made number 30,000.

Ohio has about 4500 abandoned coal mines in 24 counties, of which 570 have been sealed. This involved the closing of approximately 13,000 openings. Numerous communities report that their difficulties in obtaining supplies of pure water appeared to be at an end.

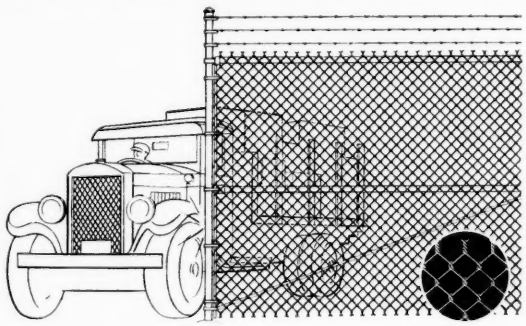


This new SERVICISED Armoured Planking is being widely adopted.

- Where the going's tough specify Servicised armoured planking—it really stands the "gaff" on bridge decks, bridge and viaduct approaches, ramps, etc.
- The steel Armour resists abrasion, prevents rutting and controls flow of paving material under stress of heat or pressure.
- For detailed information write to

Servicised Products Corp.
6055 W. 65th. ST. CHICAGO, ILL.

BUILT TO STAND ROUGH TREATMENT

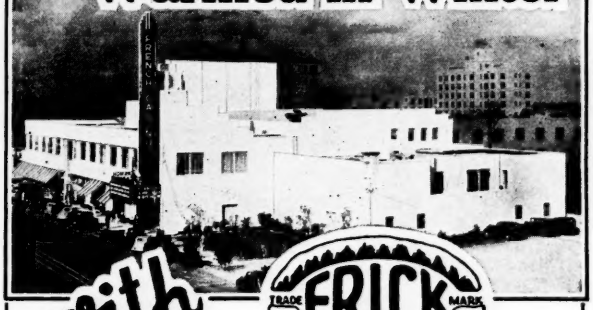


Pittsburgh Fence is specially manufactured to stand up for years under hard use and at a minimum maintenance cost. Designed for resilience, Pittsburgh Fence yields to the normal shocks of everyday impacts without sacrifice of appearance or efficiency. Let us estimate the cost of enclosing your property with Pittsburgh Chain Link Fence.

PITTSBURGH STEEL COMPANY
753 Union Trust Building Pittsburgh, Pennsylvania

Pittsburgh Fence

Cooled in Summer Warmed in Winter



with FRICK Refrigeration

- This well known theatre at Miami Beach, Florida, is one of several FRICK installations which operated through the past winter on reversed refrigeration for supplying heat.
- As these systems collect up to ten dollars worth of heat for every dollar's worth of power, they offer further proof of the superior economy of Air Conditioning with FRICK Refrigeration.
- Estimates on a FRICK system to suit your requirements will be cheerfully submitted.

FRICK CO. WAYNESBORO, PENNA. U.S.A.
DEPENDABLE REFRIGERATION SINCE 1882

Essentials of Effective Air Exhaust Systems

By

M. I. Dorfan,
Manager, Dust Control Division, Blaw-Knox Company, Pittsburgh, Pa.

WITH attention being focussed to an increasing extent on the hazards of dust and other types of atmospheric pollution, it is essential to realize that effective protection involves more than the mere removal of polluted air by a system of ducts and fans. Each installation of a practical air exhaust system provides its own peculiar problems. These problems can be solved, but engineering experience based upon a careful study of the conditions must be employed if satisfactory results are to be obtained.

The primary consideration is to be found in the material to be exhausted. Is it dust, vapor, fumes or gas, and in what medium are the impurities to be found? In these considerations is to be discovered the probable answer to the question of the type of system to be used.

Other factors, however, also have a bearing. Can some of the impurities be dissipated safely into the outside air or is it necessary to remove some or all of the impurities? The type of incoming air also is a major consideration. As an example, at one plant it was found that the outside air had a dangerously high content of extremely fine dust particles so that the mere act of drawing out the dust from the plant would have been followed by replacement with a new supply of dust from the outside. The solution in this case was found in cleaning the air and returning it to the plant.

It is not only in complicated industrial operations that consideration must be given to all the factors involved. Even in such a simple process as mixing hot sand and water in a pug mill in an ordinary foundry, the problem is encountered of removing air laden with both dust and moisture in the form of steam.

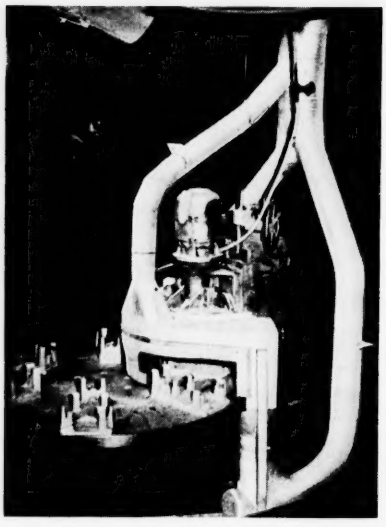
With such a combination, the problem is what kind of system to use since the tendency of moisture to condense into water and precipitate the dust on the sides of the duct and eventually to clog the system must be considered. In such a case, the designer must find a means of either introducing more air to absorb the temperature or to evaporate such moisture as may be troublesome.

In another instance, the installation of an exhaust system brought about the desired reduction in dust, but it was followed by increased suffering from colds and other illness on the part of employees. In this case, temperature and humidity control had to be provided for the incoming air.

An unusual problem was found in a plant in the Rocky Mountain region at an elevation of 11,500 feet. This plant had a large room in which were installed filter presses and hearth type dryers which emitted vapor high in moisture content and containing large concentrations of extremely siliceous material. The low temperatures prevailing at this altitude in winter made it difficult to replace exhausted air tempered to a point which would permit men to work. Accordingly the installation of a system which would clean and return the air to the room became the obvious solution. The first thought was to install a dust collector of the washing type, but thorough analysis of the job showed that a combination of washing type and filter type dust collectors provided the proper answer. The one type washed and conditioned the gas so that the filter could clean it properly and thus return it to the workroom.

Dust collector or dust exhaust systems are practical for every kind of industrial operation. But these examples show that installation requires careful study by experienced engineers if the undesirable pollution is to be removed to a satisfactory extent and if the operation of the system is not to present an entirely new problem.

Hood Assembly for Drawing Air From Above and Below Operation to Control Dust Hazard



National Association of Manufacturers Elects Officers for 1937

C. M. CHESTER, Chairman of the General Foods Corporation and President of the National Association of Manufacturers during 1936, was elected Chairman of the Board of the Association for 1937, and William B. Warner, President of the McCall Company, was elected president. Other officers elected for 1937 were: Thomas F. Wilson, Chairman, Wilson and Company, Chicago, First Vice President; S. Clay Williams, Chairman, R. J. Reynolds Tobacco Co., Winston-Salem, N. C., Second Vice President; and Walter J. Kohler, President, Kohler Company, Kohler, Wis., Third Vice President. Among regional vice presidents elected for 1937 were Lammont du Pont, President, E. I. du Pont de Nemours & Co., Wilmington, Del.; William L. Hoge, President, Mengel Company, Louisville, Ky.: T. M. Girdler, Chairman, Republic Steel Corporation, Cleveland; S. Wells Utley, President, Detroit Steel Casting Co., Detroit; H. W. Prentis, Jr., President, Armstrong Cork Co., Lancaster, Pa., and F. B. Davis, President, U. S. Rubber Co., New York.

Mineral Resources for Development

COAL, shales and clay resources of the Gulf, N. C., area served by the Norfolk and Southern and the Atlantic & Yadkin Railway are beginning to be developed on a broader scale. Charles H. Gunter of Deep River Coal, Inc., reports his project is progressing favorably and apart from its coals and black shales, the community is rich in material for the manufacture of brick, tile, etc. These raw materials are being shipped to distant points in North Carolina, and opportunities are open for the establishment of plants at Gulf to utilize local resources.

Increase in Carloadings

THE carloadings forecast of the Regional Shippers' Advisory Boards covering 29 principal commodities indicates an increase of 9.2 per cent of the 1st quarter of 1937. The actual carloadings for the 1st quarter of 1936 were 4,859,593 and the estimated carloadings for the corresponding period this year are 5,307,000.

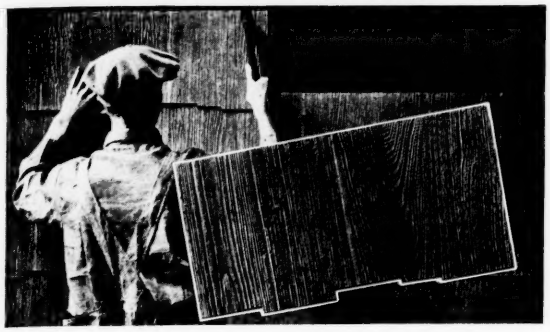
A 13.6 per cent gain is expected for the Allegheny territory with a forecast of 842,363 cars; 302,221 cars for the Trans-Missouri-Kansas territory to show a gain of 5.7 per cent; 522,981 cars for the Southeast territory, or a gain of 9.6 per cent and 309,943 cars for the Southwest territory, or a gain of 4.3 per cent.

Conchas Dam Development

CONSTRUCTION of the Conchas Dam in New Mexico is proceeding rapidly. The initial contract of $4,586,000 was awarded to Bent Brothers, Inc.—Griffith Company, Los Angeles. Other contracts are being let as approximately $9,500,000 have been made available under the Federal public works fund for the flood control and water supply project.

Arthur W. Large, General Agricultural Agent, Rock Island Lines, Chicago, calls it a small scale Boulder Dam which will have the features of that great development, and asserts that when Conchas Dam and its related developments have all been completed in the next several years the total investment will probably exceed $60,000,000. Conchas Dam, which will be of benefit to Amarillo and other Texas towns in that area, is developing considerable business in the Birmingham, Ala., and other Southern manufacturing centers in furnishing material and equipment.

CHECK THESE FEATURES OF TIMBERTEX SIDINGS FOR MILL COTTAGES



IF YOU PLAN building mill cottages or modernizing old ones, investigate Eternit Timbertex Asbestos-Cement Shingles. These popular, colorful sidings have the beauty of Cypress, but are rot-proof—fire-proof—termite-defying and never require paint or stain to prolong their life.

When these siding shingles are applied over weather-worn walls, you have another money-saving advantage. The dead air space between provides effective insulation, reducing fuel costs and providing new comforts for your employees. It will pay you to investigate. Write for folders. Address Dept. **M. R. 2-37**

RU-BER-OID

ROOFING AND BUILDING PRODUCTS

THE RUBEROID CO., *Executive Offices*, 500 Fifth Avenue, New York

"SERVICISED"

Quality Expansion Joints

Felt-Sided ••• Fibre •• Sponge-Rubber •• Cork-Rubber

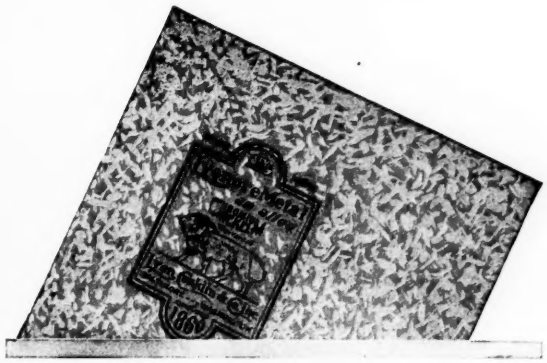
Good highway construction calls for experienced highway engineers. To these builders the complete line of Servicised Expansion Joints represents the maximum quality obtainable in such products. The Servicised name implies, "Top service and top quality built into the products."

Submit your requirements for joints, metal accessories and related products to the Servicised engineering department for reliable estimation.

Send for Bulletin giving complete information on all Servicised Expansion Joints, including regular, air-cell and metal-shielded types.

Servicised Products Corp.

6055 W. 65th ST. CHICAGO, ILL.



It's made in

ONE GRADE ONLY

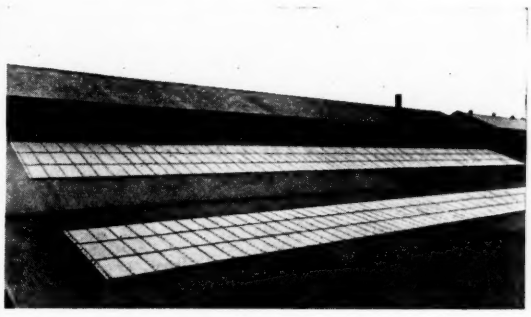
THERE is no "second grade"—no inferior quality of Lyonore Metal Chromium—Nickel—Copper—Iron alloy. It is made according to our own exclusive formula in the most exacting manner in one of the world's largest sheet mills. For your protection, each sheet of galvanized Lyonore Metal is stencilled in red three times diagonally lengthwise.

For lasting satisfaction in any sheet metal work, specify and use corrosion-resisting Lyonore Metal.

Lyon, Conklin & Co. Inc.

BALTIMORE MARYLAND

"It costs less **BECAUSE** *it lasts longer"*



OLIVER IRON AND STEEL CO.
PITTSBURGH, PA.
C. W. G. Used with Corrugated Roofing

SPECIFY CORRUGATED WIRE GLASS FOR SKYLIGHTING

They diffuse light with a minimum of shadows. They are self cleaning and can be used on a roof of any material, and supply daylight in manufacturing and industrial plants—an important factor in all modern production.

Also used with excellent results on sidewalls, marquises, canopies and wherever daylight is needed.

Our Engineering Service Department can aid you on your skylighting problems. Write or wire.

PENNSYLVANIA WIRE GLASS CO.
1612 MARKET STREET
PHILADELPHIA, PENNSYLVANIA

Sweetpotato Starch

(*Continued from page* 41)

the higher these are, the greater the profit. One progressive farmer grew 10 acres of sweetpotatoes for the starch plant in 1935. After paying all costs his net profit amounted to $40.03 per acre. His 1936 crop was increased to 25 acres. But that was above the average. The more progressive farmers say they can produce and deliver high yields of sweetpotatoes to the starch plant at from $25 to $30 an acre. Such farmers usually put their potatoes on good land, use the recommended amount of fertilizer, and average from 200 to 300 bushels per acre.

The country's production of sweetpotatoes runs around 75,000,000 bushels a year, and the crop is grown on more than half the farms in the South. The sweetpotato is the most important vegetable crop produced in the Southern States, and North Carolina, Mississippi, Alabama, Georgia, Louisiana, and Tennessee are the leading sweetpotato-producing States. Following is a list of yield and starch content of 10 Southern varieties of sweetpotatoes produced in test plots at Laurel in 1936. These potatoes were produced under better than average conditions, but not better than progressive farmers can and are employing.

Variety	*Yield Bushels*	*Starch Content Per-Cent*
Mississippi Blue Stem Triumph	308	24
Wennop (from Australia)	303	27
Pierson	293	26
U. S. 95984	279	21
Mississippi Green Stem Triumph	275	25
U. S. 85985	275	21
Norton	267	28
Nancy Hall	252	22
Porto Rico	244	21
Southern Queen	212	23

In making sweetpotato starch there is produced a byproduct pulp. A bushel of potatoes produces about 10 pounds of starch and close to 5 pounds of dried potato pulp about equal to sugar beet pulp in feeding value. I might add that it requires about 48 hours to convert potatoes into market starch.

Outlook

The outlook for the sweetpotato starch industry is whatever the South makes of this new opportunity. Chemists have solved the color problem, greatly lowered the cost of producing the starch, and are continuing their investigations. Industries in the South and elsewhere have tried the new starch on a commercial scale, and pronounced it satisfactory. Farmers are pleased with their new market, and are trying to make it more profitable to themselves and the industry by increasing the yield of potatoes per acre.

But it must be remembered that the sweetpotato starch industry is still in its infancy, with only one small plant in the entire country. Other plants will have to be established before farmers, except those around Laurel, will have a starch market for sweetpotatoes. In fact, it would require 150 plants the size of the one at Laurel to make as much root starch as we import.

The cost of building and equipping additional plants similar to the one at Laurel would run between $75,000 and $100,000 a plant. It requires 52 men working in three 8-hour shifts to operate the Laurel plant at full capacity.

$100,000,000 Southern Power Expansion

(*Continued from page* 36)

bunkers, as well as the coal bunkers in the present boiler house designed to handle coal at the rate of 150 tons per hour.

Drag scraper and conveying equipment in the yard for reclaiming coal from the yard storage pile to the new elevating and conveying systems and for stocking out incoming shipments of coal.

The following contracts and orders were placed for construction materials and for the principal equipment provided in the above extension:

Item	Contractor
Steam shovel excavation	Luck Construction Co., Richmond, Va.
Cement aggregate	Transite Mixed Concrete Corp., Richmond, Va.
Brickwork (Material only)	Earnest Bros., Inc., Richmond, Va.
Structural steel	Virginia Bridge Co., Roanoke, Va.
Testing concrete cylinders	Froehling & Robertson, Inc., Richmond, Va.
Steel windows and tubular steel doors	Detroit Steel Products Co., Detroit, Mich.
Glass and glazing	Binswanger & Co., Richmond, Va.
Hollow metal doors	Dahlstrom Metallic Door Co., Jamestown, N. Y.
Tinclad doors	The Richmond Fireproof Door Co., Richmond, Va.
Rolling steel doors	The J. G. Wilson Corp., Norfolk, Va.
Stairs and railings	Art Bronze & Iron Works, Danville, Pa.
Grating	American Abrasive Metals Co., Rankin, Pa.
Precast concrete roof deck	Porete Manufacturing Co., North Arlington, N. J.
Roofing and flashing	Piper Roofing Co., Inc., Richmond, Va.
Metal louvres, screens and operators	Eagle Cornice & Skylight Works, Cambridge, Mass.
Radial brick chimney	The Rust Engineering Co., Pittsburgh, Pa.
Ash elevator	Otis Elevator Co., Philadelphia, Pa.
Hardware	Virginia & Carolina Hardware Co., Richmond, Va.
Boiler superheater water walls and setting	Combustion Engineering Co., Inc., New York, N. Y.
Coal pulverizers and feeders	Combustion Engineering Co., Inc., New York, N. Y.
Air preheaters	Combustion Engineering Co., Inc., New York, N. Y.
Burners and burner piping	Combustion Engineering Co., Inc., New York, N. Y.
Soot blowers and soot blower piping	Combustion Engineering Co., Inc., New York, N. Y.
Forced and induced draft fans	B. F. Sturtevant Co., Inc., Hyde Park, Mass.
Forced and induced draft ducts	Connery Construction Co., Philadelphia, Pa.
Cottrell fly ash precipitator	Research Corporation, New York, N. Y.
Combustion control equipment	Bailey Meter Co., Cleveland, Ohio.
Deaerating feed water heater	Cochrane Corporation, Philadelphia, Pa.
High pressure feed water heater	Westinghouse Elec. & Mfg. Co., Philadelphia, Pa.
Boiler feed pumps	Ingersoll-Rand Co., New York, N. Y.
Boiler feed pump turbines	The Terry Steam Turbine Co., Hartford, Conn.
Feed water level controllers	Northern Equipment Co., Erie, Pa.
Feed water differential pressure governors	The Swartwout Co., Cleveland, Ohio.
Steam pressure reducing valves and control equipment—850 lbs. to 200 lbs.	The Swartwout Co., Cleveland, Ohio.
Steam desuperheating and thermo-control equipment	Smoot Engineering Corp., (Republic Flow Meters Co.) Chicago, Ill.
Boiler water storage tanks	Connery Construction Co., Philadelphia, Pa.
Boiler water chemical treatment	The Hall Laboratories, Inc., Pittsburgh, Pa.
High and low pressure piping	Grinnell Co., Inc., Providence, R. I.
High pressure gate valves	The Chapman Valve Mfg. Co., Indian Orchard, Mass.
High pressure globe valves	The Edward Valve & Mfg. Co., East Chicago, Ind.
Low pressure gate, globe and check valves	Reading-Pratt & Cady Co., Inc., Reading, Pa.
Boiler nonreturn valve	Schutte & Koerting Co., Philadelphia, Pa.
Heat insulating material	The Philip Carey Co., Norfolk, Va.
Station coal handling equipment	Robins Conveying Belt Co., New York, N. Y.
Stocking and Reclaiming coal handling equipment	Stephens-Adamson Mfg. Co., Aurora, Illinois.
Slag ash handling equipment	The Allen-Sherman-Hoff Co., Philadelphia, Pa.
Fly ash handling equipment	United Conveyor Corporation, Chicago, Illinois.
Turbine generator, including air and oil coolers	General Electric Co., Schenectady, N. Y.
Traveling crane	Whiting Corporation, Harvey, Ill.
Lubricating oil filtering equipment	S. F. Bowser & Co., Inc., Fort Wayne, Indiana.
Station air compressor	Ingersoll-Rand Co., New York, N. Y.
Recording flow meters	Bailey Meter Co., Cleveland, Ohio.
Recording pressure gages	The Bristol Co., Waterbury, Conn.
Recording thermometers	The Bristol Co., Waterbury, Conn.
Indicating pressure gages	Crosby Steam Gage & Valve Co., Boston, Mass.
Indicating thermometers, high temperature	Taylor Instrument Companies, Rochester, N. Y.
Indicating thermometers, low temperature	American Schaeffer and Budenberg Division, Consolidated Ashcroft Hancock Co., Inc., Bridgeport, Conn.
House service water pump	Worthington Pump and Machinery Corp., New York, N. Y.
Condensate booster pump	Worthington Pump and Machinery Corp., New York, N. Y.
Dirty water sump pumps	Ingersoll-Rand Co., New York, N. Y.
Clean water sump pumps	Goulds Pumps, Inc., Philadelphia, Pa.
Generator CO_2 fire protection equipment	Walter Kidde & Co., Inc., New York, N. Y.
13,200 volt bus supports and disconnecting switches	General Electric Co., Philadelphia, Pa.
13,200 volt oil circuit breakers and instrument transformers	General Electric Co., Philadelphia, Pa.
Main control and excitation switchboards	G & N Engineering Co., Boston, Mass.
2300 volt station service switchboard	Westinghouse Elec. & Mfg. Co., Philadelphia, Pa.
220 volt station service switchboard	The Trumbull Elec. Mfg. Co., Plainville, Conn.
Station service transformers	Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Motors and control	Westinghouse Elec. & Mfg. Co., Philadelphia, Pa.
Multiple conductor control cable	The Kerite Insulated Wire & Cable Co., Seymour, Conn.
220 volt and 2300 volt station service wire and cable	The Okonite Co., Passaic, N. J.
Gage boards	G & N Engineering Co., Boston, Mass.

The foregoing illustrates the variety and volume of Southern power purchases of material and equipment in carrying forward construction operations. Privately owned power utilities are also expending many millions for maintenance, operation and wages—money that is distributed in the trade channels of the South.

BELMONT IRON WORKS
PHILADELPHIA NEW YORK EDDYSTONE
Southern Sales Offices, Charlotte, N. C.
Engineers . Contractors . Exporters
STRUCTURAL STEEL
BUILDINGS AND BRIDGES
RIVETED-ARC WELDED
BELMONT INTERLOCKING
CHANNEL FLOOR
Write for Catalogue
Main Office—Philadelphia, Pa.
New York Office—44 Whitehall St.

NEW YORK CENTRAL IRON WORKS
1001 Mitchell Ave., HAGERSTOWN, MARYLAND
Steel Plate Fabricators
TANKS, PRESSURE VESSELS, STACKS, BREECHINGS, ETC.
Phila. Office: 1836 Champlost Ave., Phone, Hancock 5796
New York Office: 92 Liberty St., Phone, Cortlandt 7-1234

STEEL PLATE CONSTRUCTION
TANKS STACKS DREDGE PIPE
Acid Tanks, Breechings, Condensers, Coolers, Digestors, Dryers, Filters, Gasoline Tanks, Jacketed Tanks, Molasses Tanks, Oil Storage Tanks, Pressure Tanks, Settling Tanks, Standpipes, Stills, Vacuum Tanks
LANCASTER IRON WORKS
LANCASTER, PA.

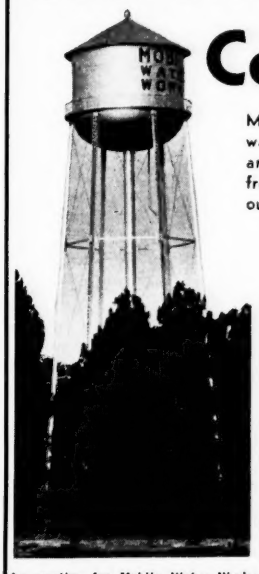
NORFOLK TANK CORPORATION
NORFOLK, VA.
Baltimore Rep: Allan U. Bevier, Inc., 322 S. Fremont Ave.
STEEL PLATE FABRICATORS
TANKS: Pressure, Truck, Trailer, Water, Process, Storage; Standpipes, Bins Hoppers, Stacks, Pipe Coils; Angle Rings, Dredge Pipe, Asphalt Equipment, Industrial Specialties

Water Purification Plants
Any Type—Any Purpose—Any Capacity
Dry Chemical Feed Machines
Swimming Pool Filters
E. W. BACHARACH & CO.
Rialto Bldg. Kansas City, Mo.

FILTERS
Water Filters for Municipalities, Textile Finishing Establishments, Rayon Manufacturing Plants, Swimming Pools, Raw Water Ice Plants, Laundries, etc.
ROBERTS FILTER MANUFACTURING COMPANY
604 Columbia Avenue Darby, Pennsylvania

Filtration and Pumping Equipment
For Water Works and Swimming Pools
Sales and Installation
BURFORD, HALL AND SMITH
140 Edgewood Avenue, N. E.,
Atlanta, Georgia

Tank Builders For Over 80 Years!
Cities Served by Cole Tanks



An erection for Mobile Water Works

Many municipal or privately owned water works have had us build tanks and elevated towers to specification from their own engineer's design or ours. Some of the cities served are:

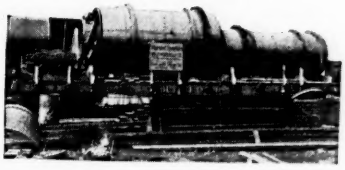
CHARLOTTE, N. C. (Million gallon tank)
CLEARWATER ISLAND, FLA.
DANVILLE, KY.
MOBILE, ALA.
McPHERSON, KAN.
ST. PETERSBURG, FLA.
ALBANY, GA.
GASTONIA, N. C. (Million gallon tank)
CEDARTOWN, GA.
SPARTANBURG, S. C. (Million and a half gallons)
NEWNAN, GA.

In addition to water tanks we also build tanks for acid, dye, oil, creosote, chemicals, etc., as well as other fabricated products of Quality steel and alloy steel plate. Let us figure on your requirements.

Write for "Tank Talk"—No. 8-D.

R.D.COLE MANUFACTURING CO.
NEWNAN EST. 1854 GEORGIA

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either
WELDED OR RIVETED CONSTRUCTION
This applies to field as well as shop built equipment.
Write us for information and quotations.
CHATTANOOGA BOILER & TANK CO.
CHATTANOOGA, TENN.

DAVIS CYPRESS WATER TANKS
It's no unusual fact for a Davis Tank to last 25 to 35 years, as hundreds of southern industrial plants can testify. Cypress need only be outside-painted to last indefinitely; keeps water cool and sweet, and when Davis-built represents a major economy in equipment cost, either inside or outside the plant. Ask for estimates — any size, shape, for any purpose. Our new catalog will also be mailed on request.
DAVIS CYPRESS TANKS
G. M. DAVIS & SON
P. O. Box 5
Palatka, Fla.

Financial Self-Sufficiency

By

Claude G. Rives, Jr.
Vice President,
Whitney National Bank, New Orleans, and
Investment Bankers Association of America

THE MANUFACTURERS RECORD and Robert M. Hanes are to be congratulated upon the article in the January issue by Mr. Hanes. It was one of the clearest expositions we have read of the financial self-sufficiency of the Southern States. There are probably many people that do not appreciate the ability of both the commercial and investment bankers of this region to finance the needs and growth of the South.

Alert leaders in financial centers throughout the South will confirm Mr. Hanes' statement that, "The time is rapidly approaching when the financial advantages offered industry in the South will equal those to be found in any other section of the country."

The financial progress of the South has been remarkable in recent years, and the time when we were developing more rapidly industrially than financially is past. To industries established here that contemplate expansion or to those that consider moving operations into this section for its numerous natural advantages, the financial community below the Mason-Dixon line can offer ample accommodations. This applies to commercial banking facilities for providing seasonal credit and just as truly to the facilities for procuring permanent capital for construction of plant or expansion of operations.

A census of securities dealers was only recently completed by the Federal Government, the first enumeration of the organizations for the underwriting and distribution of bonds and stocks which are the agencies that are employed for procuring the permanent capital of business concerns as well as municipalities and states.

In the section of the country that was discussed by Mr. Hanes, the Census Bureau reported a total of 947 establishments engaged in the securities business as brokers or dealers. The personnel of these 947 organizations exceeds 6,780 individuals of whom 675 are proprietors of their own business or members of partnerships, 740 are executives or salaried officials of incorporated organizations, and around 5,350 are full or part time employees.

Included are Southern branches of investment banking houses and brokerage firms whose headquarters are in Northern cities, but more than 700 organizations and the great majority of the people engaged in the securities business are Southerners conversant with the problems of business and industry throughout the territory.

Also included are several organizations which operate branches in financial centers of the East and Middle West from Southern headquarters. The industrialist who looks to the Southern territory is in no sense restricted to the financial markets of this area, but as Mr. Hanes pointed out, the Southern institutions are now prepared to meet the competition in rates and services that are offered elsewhere. They also have close contacts with similar organizations in the East, North and West, this constituting, in effect, what might be termed a national reservoir of credit and capital resources. Southern houses participate regularly in nation-wide security distributing syndicates and simultaneously enlist nation-wide participation in their own underwritings.

Mr. Hanes properly urged a heavier investment in our own industries. If the greatest benefits growing out of the Southern industrial expansion are to accrue to Southern people, more of our industrial opportunities should be realized by our own investors and capitalists.

TRADE LITERATURE

(*Continued from page* 54)

JACKBITS FOR ROCK DRILLING—
Booklet (Form 2304)—characteristics and uses of Jackbits for rock drilling, giving dimensions and prices on Jackbits and Jackrods.
Ingersoll-Rand Company, New York.

ARC WELDING—
Booklet—"Lesson in Arc Welding," presenting in concise form certain fundamental facts of welding.
The Lincoln Electric Company, Cleveland Ohio.

CONCRETE PILES—
Booklet—devoted to the design, manufacture and driving of concrete piles.
Portland Cement Association, 33 West Grand Ave., Chicago, Ill.

THREADING AND WELDING EQUIPMENT—
Catalog—illustrated, devoted to entire line of Oster-Williams pipe and bolt threading equipment and welding equipment.
The Oster Manufacturing Company, Cleveland, Ohio.

SERVICISED Sewer Joint Compounds

● Two types of plastic joint compound and a reliable hot poured asphalt compound are made by Servicised Products Corporation to meet the full range of requirements for sewer pipe installation.

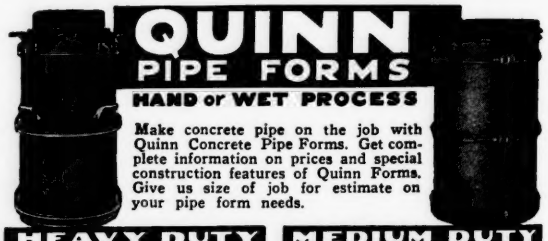
The plastic compounds are:

TUFFLEX &
●
SERVITITE
● ● ●
(hot poured)
ASPHALT COMPOUND

This heavy pipe joint is held together entirely by Servicised Servitite, showing its great adhesive strength.

Send for Bulletin covering Servicised Sewer Belt Compounds, also, Servicised premoulded Sewer Pipe Belt.

Servicised Products Corp.
6055 W. 65th ST. CHICAGO, ILL.



QUINN PIPE FORMS
HAND or WET PROCESS

Make concrete pipe on the job with Quinn Concrete Pipe Forms. Get complete information on prices and special construction features of Quinn Forms. Give us size of job for estimate on your pipe form needs.

HEAVY DUTY
Built for more years of service —sizes for any diameter pipe from 12 to 84 inches — any length—tongue and groove or bell end.

MEDIUM DUTY
Makes same sizes pipe as "Heavy Duty" but built to meet demand for lower cost equipment to produce uniform quality in smaller amounts.

Also manufacturers of concrete pipe machines for making pipe by machine process.

QUINN WIRE & IRON WORKS 1605 12 St. Boone, Iowa

GLAMORGAN
PIPE & FOUNDRY CO.
LYNCHBURG, VA.

Manufacturers of
Cast Iron Pipe and Fittings
For Water and Gas Service

VEN-ITE

THE MONARCH OF FLOORS

We contract to install guaranteed cement floors anywhere in the Country.

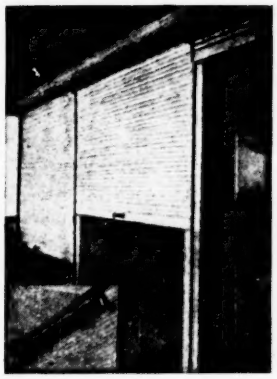
Either your job specifications, or a Ven-ite specification; figured optional with yourselves.

Ven-ite Floors embody several types as follows:

VEN-ITE HEAVY DUTY INDUSTRIAL FLOORS
VEN-ITE CEMENT FLOORS FOR PUBLIC BUILDINGS
VEN-ITE COLORED CEMENT FLOORS
VEN-ITE SURFACED CEMENT FLOORS (TERRAZZO)
VEN-ITE ACID PROOF FLOORS
VEN-ITE BLACK TOP FLOORS
VEN-ITE GRANOLITHIC FLOORS

All work guaranteed against disintegration, dusting, and loose bond.

VEN-ITE COMPANY INCORPORATED
General offices: 250 S. Broad St., Philadelphia, Pa.
210 Kinney Bldg., Charlotte, N. C.



ROLLING WOOD PARTITIONS

For all purposes: Wherever Division of Rooms is required. Also

VENETIAN BLINDS

Reliable Material and Low Prices.

SWEDISH VENETIAN BLIND CO.
601 W. 26th St.
New York

Branches in Principal Cities

CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

WOLMANIZED LUMBER—
Decay and Termite Proof—Can Be Painted
Docks for Ocean Vessels

American Creosote Works, Inc.
New Orleans, La.

Atlantic Creosoting Co., Inc.
Norfolk, Virginia

Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

LONG LIFE TO LUMBER!

To add from 8 to 20 times the ordinary life and service you might expect from your lumber, use only pressure-preserved woods treated with ZMA or Creosote. Eppinger & Russell Co. has, for 58 years, been treating poles, ties, posts, piling, cross arms, cross ties and other timber for the nation's leading industrial firms and utilities. Safeguard your lumber against dry rot and termites by employing this outstanding wood-treating service.

PRESSURE-TREATING PLANTS AT:
Jacksonville, Fla.
and
Long Island City, N. Y.

WOOD PRESERVERS SINCE 1878
EPPINGER & RUSSELL CO.
84 Eighth Ave., New York City

FOR THEIR GREATER SERVICE
USE

SHIMER SUCCESS PLANING MACHINE KNIVES AND BITS,

Surfacing Knives and many Knives of smaller proportions for special duty in wood cutting. It will be to your advantage to look into this feature of our service. Our prices, too, are very attractive if you take in consideration their extra wear.

Samuel J. Shimer & Sons, Inc.
MILTON, PA.

HUTTON & BOURBONNAIS CO.

HICKORY, N. C.

Industrial Crating, Box Shooks, Rough and Dressed Lumber, Oak Flooring, also Pinus Strobus Pattern Lumber, White Pine, N. C. Pine, Oak, Poplar and Chestnut.

INQUIRIES SOLICITED.

MOUNT AIRY GRANITE

Peerless Beauty and Strength

THE NORTH CAROLINA GRANITE CORP'N.
Mount Airy, N. C.

FOR ATTRACTIVE BUILDINGS AND MAUSOLEUMS

USE BLUE "OGLESBY" GRANITE

It Assures Greater Permanence—Unusual Beauty Reasonable Cost

FOR BUILDINGS CUT-ASHLAR RUBBLE — FOR MONUMENTS—MARKERS—MAUSOLEUMS

Quarried by—
OGLESBY GRANITE QUARRIERS, ELBERTON, GA.
"Preferred for Better Memorials since 1893."

Northern Hard Rock Maple Flooring

BLOCK — Holt Hardwood Co., Oconto, Wis. — STRIP

MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION

EQUIPMENT FOR THE SOUTH

Among the equipment made by the Chicago Bridge & Iron Company for recent installation in the South are municipal water tanks, butane gas tanks and concrete mixing silos.

The two butane tanks illustrated are to be used for the butane gas distribution system being installed at Marfa, Tex., by the B. & M. Construction Company. One tank has a capacity of 18,200 gallons which is used to store the liquid butane under pressure as it is received from tank cars. The liquid butane is then vaporized into gas and stored in the 10-feet diameter tank.

At the TVA Chickamauga Dam construction project, the concrete mixing plant shown in the accompanying illustration includes a 4,000 barrel silo, 24-feet in diameter and 59-feet high, fabricated at the Birmingham plant of the Chicago Bridge & Iron Company.

FAIRBANKS-MORSE DIESELS AND POWER PUMPS—
Booklet—describing and illustrating Fairbanks-Morse Diesel engines, made in sizes from 10-hp. to 2400-hp. and in designs which may be applied to every kind of service; Bulletin 6160—illustrating and describing Fairbanks-Morse Duplex Power Pumps for standard general service and heavy duty.
Fairbanks, Morse & Co., Chicago, Ill.

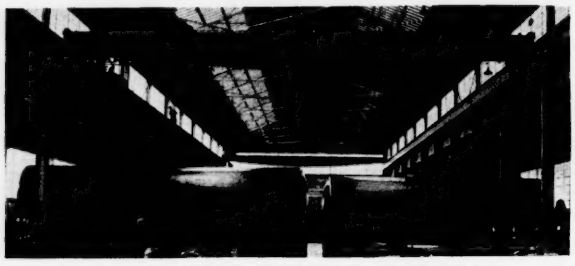
CARBONDALE UNIT AIR CONDITIONING—
Bulletin 1122—illustrating and describing Carbondale Unit Air Conditioners, which are recommended for restaurants, stores, offices, and for modernization of old buildings.
Carbondale Division, Worthington Pump and Machinery Corporation, Harrison, N. J.

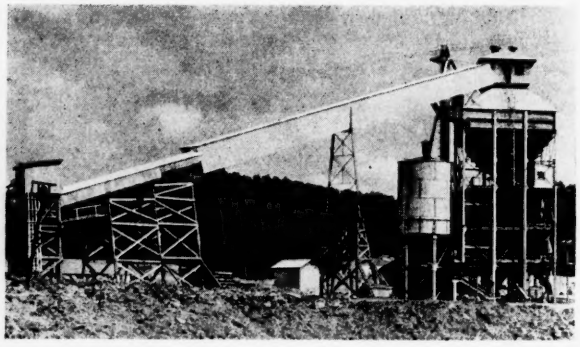
PLUMBING AND HEATING—
Booklet—"Markets for Plumbing and Heating Facilities in Residences," second and final publication in a series covering the Real Property Inventory of 64 selected cities. Price 10 cents.
Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C.

ELECTRIC ARC WELDING—
Catalog—devoted to the new 40 volt Simplified Electric Arc Welding.
Hobart Brothers Company, Box FR-173, Troy, Ohio.

MECHANICAL RUBBER GOODS—
Catalog—"A Buyer's Guide to Diamond Mechanical Rubber Goods," presenting illustrations and descriptions of more than 50 rubber products and accessories widely used in industry, such as transmission and conveyor belting, hose and fittings, tubing, packing, cements, valves and matting.
The B. F. Goodrich Company, Akron, Ohio.

Right—Concrete Mixing Plant for T. V. A. Chickamauga Dam near Chattanooga
Below—Gas and Liquid Tanks for Marfa, Tex., Butane Gas Plant





CONVERSE BRIDGE & STEEL CO.
Chattanooga, Tennessee
Structural Steel for all Industrial Structures, Buildings and Bridges.
LARGE STOCK FOR IMMEDIATE SHIPMENT

AUSTIN BROTHERS BRIDGE CO.
Structural Steel and Ornamental Iron Bridges, Reinforcing and Guard Fence
ATLANTA, GEORGIA
Oakland City Station

Bristol Steel & Iron Works, Inc.
STRUCTURAL STEEL
For Bridges, Buildings and All Industrial Purposes
Steel Plate and Miscellaneous Iron Work
Complete Stock Shapes, Plates, Sheets and Bars for Immediate Shipment
BRISTOL, VIRGINIA-TENNESSEE
"SAVE WITH STEEL"

STRUCTURAL STEEL for BUILDINGS and BRIDGES
Capacity 1000 Tons per Month. 3000 Tons in Stock
Carolina Steel and Iron Company
The Largest Steel Fabricators in the Carolinas
Greensboro North Carolina
S. C. Rep., Edward McCrady, 307 Allen Bldg., Greenville, S. C.

CRUSHED LIMESTONE
Best for All Purposes
We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.
Quarries opened up in 1912.
Capacity 8000 tons daily.
Four Quarries
Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.
Boxley, Greensville County, Va.
W. W. BOXLEY & COMPANY
Room 711, Boxley Building,-ROANOKE, VA.

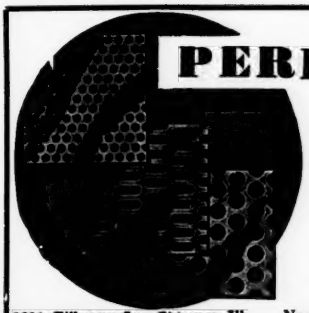
MASCOT CHATTS
ASPHALTIC ROADWAY GRAVEL
ROOFING GRAVEL CRUSHED STONE
ASPHALT FILLER DUST
PULVERIZED MASCOT LIMESTONE
American Limestone Co., Knoxville, Tenn.

Masters of the craft for nearly sixty years—you may be sure your perforating problems are in safe hands when you give them to Erdle.

Whether your requirements call for aluminum, tin, zinc, brass, copper, steel, or another metal—Erdle can meet them. And meet them promptly—aided by large stocks of blank sheets kept always in readiness.

Send us your specifications for prices. Sample plate upon request.

ERDLE
PERFORATING COMPANY
ROCHESTER, N. Y.
"Master Metal Perforators to Industry"



PERFORATED METAL
of every sort
for Screening, Grading, Ventilating or any industrial purpose. Also Grilles of many beautiful designs.
5631 Fillmore St., Chicago, Ill. New York Office: 114 Liberty St.
The Harrington & King PERFORATING Co.

PERFORATED METALS
Screens . . . . Grilles
Extensive facilities and long experience make Hendrick the logical source for all perforated metals . . . screen plate with any shape opening, round, square, hexagonal, squaround,* slotted, corrugated . . . heating and ventilating grilles of every description. Hendrick can furnish them in any desired commercially-rolled metal. *Reg. U. S. Pat. Off.
HENDRICK MANUFACTURING CO.
44 Dundaff Street, Carbondale, Pa.
Manufacturers of Mitco Open Steel Flooring, Mitco Shur-Site Treads and Mitco Armorgrids.

No. 1

No. 3
MANHATTAN
PERFORATED METAL CO., INC.
43 17-37th Street, Long Island City, N. Y.
PERFORATORS
of All Kinds of Metals for All Industries
Write for Copper, Brass, Tin, Zinc or Aluminum Catalog

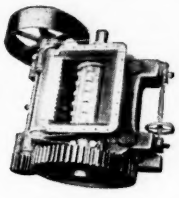
No. 7

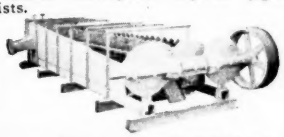
No. 22

MUNDT PERFORATED METALS
Any metal, any size, any perforation, for any use. Large stock available for urgent need.
68 years' experience enables us to give superior service. MUNDT'S customers are always satisfied.
Charles Mundt & Sons
490 JOHNSTON AVE., JERSEY CITY, N. J.

CLAY WORKING MACHINERY
For Brick, Tile and Block, from smallest to largest capacity.
Write for information
J. C. STEELE & SONS, STATESVILLE, N. C.

LINK-BELT
CHAINS - SPROCKETS
ANTI-FRICTION PILLOW BLOCKS
POWER TRANSMISSION EQUIPMENT
ELEVATORS AND CONVEYORS
Send for General Catalog No. 600
LINK-BELT COMPANY 5580-A
Atlanta, 1116 Murphy Ave., S. W.
Baltimore Dallas New Orleans Offices in Principal Cities



McLANAHAN EQUIPMENT
CRUSHERS
Single and double roll and jaw crushers, hammer mills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists.
SCREENS
Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.

McLanahan & Stone Corp. *Established 1835* HOLLIDAYSBURG, PENNSYLVANIA

Triangular Foreign Trade

(*Continued from page* 42)

make us poorer. We know that the textile industry in the South has brought higher spending income to the 300,000 people who work in the mills and their families. We know that with these textile communities of higher spending income there has come more average per capita wealth, per capita spending, per capita available school funds and longer school terms. The cotton industry has been the first to come to our section. We do not need more cotton mills but we do need to maintain what we have and we do need other industries. With increasing industries and industrial wages there will be more need for diversified farming, which in turn promises an avenue of relief from farm tenancy, our greatest curse and inevitable concomitant of the single crop system.

We have no cotton goods trusts; no price agreements. There are 1200 units from Maine to Texas, all sharply competitive as the Federal Trade Commissions' studies show, and often destructively so as the Bankrupt Courts' records show.

There is just a certain amount of cotton goods business in this country and this until 1933 has been amply and satisfactorily supplied by American mills. The cost of these goods, of course, has been based upon American textile wages—the highest in the world. Every American product grown or manufactured under fair economic conditions based on American standards and in quantity should be given full and fair protection. There should be a united and strong support to protect our home market for what we raise and for what we make from far away foreign goods, produced under standards and conditions so different from our own.

Our Democratic Platform in Philadelphia carried the following plank: "We shall continue, as in the past, to give adequate protection to our farmers and manufacturers, against unfair competition or the dumping on our shores of commodities and goods produced by cheap labor or subsidized by foreign governments."

Since the foregoing was written by Mr. Comer, the Cotton Textile Institute reports a new agreement with Japanese cotton textile interests for importing piece goods to this country on a two-year quota, which means that no more import orders of Japanese cotton goods will be taken this year. The total volume placed for delivery in the United States in 1937 *is* 155,000,000 *yards. The estimated quota for* 1938 *is* 100,000,000 *yards, but this is about one-third more than Japan shipped in* 1936.—*Editor Manufacturers Record.*

Envisages Added Industries in Progressive South

(*Continued from page* 37)

transportation facilities for conveying in the raw materials and taking out the finished product. Opportunities of expansion and developments are opened up that were unthought of only a few years previously.

No other section has all of the natural advantages so predominant as they are in Alabama with its vast undeveloped, though proven, raw materials that are needed not only in the steel but practically all other lines of industry.

The faith of, and the building by the pioneers of industry in Alabama has been on a sound and economic basis. They have carried the light forward into the wilderness and have blazed the trails for those to follow.

It is to be expected that industry will be further attracted to the South and that developments in Alabama in the future will continue along sound lines.

Southern Textile Exposition in April

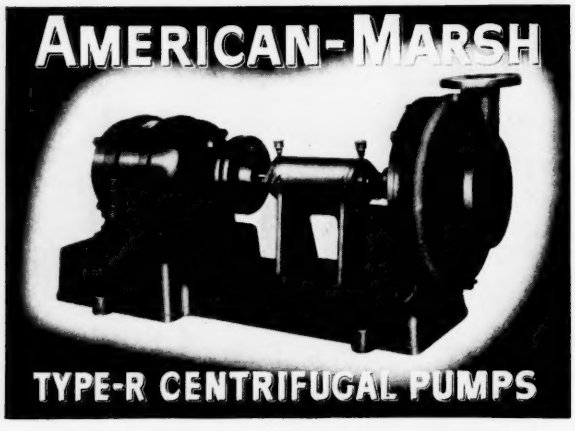
New and improved machinery, installations, accessories and supplies will be shown by leading manufacturers at the Twelfth Southern Textile Exposition to be held at Textile Hall, Greenville, S. C., April 5-10, 1937. Interesting technical meetings will be a part of the Exposition schedule during show week.

Chamber of Commerce to Meet in Washington

The 25th annual meeting of the Chamber of Commerce of the United States is to be held in Washington, D. C., April 26-29. The opening session is scheduled for April 27 with the National Council meeting on April 26.

Industrial Accidents

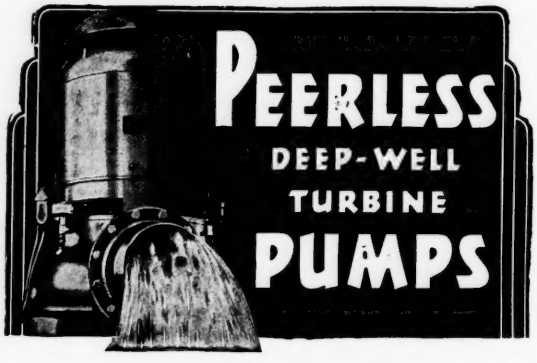
Edward C. Jacobs, Assistant District Engineering Manager, American Mutual Liability Insurance Co., spoke recently in New York on the subject "Leadership and Supervision Applied to Danger Control in the Plant." In his opinion "Accident prevention cannot be intelligently and truly applied to the conditions of works in any industrial establishment without leadership and supervision. In any organization a definite, expressed policy is needed. **** Knowing what to do when a hazard exists is a lesson many leaders must learn, **** together with a sound plan of accident control."



They Have Everything
. . . Except High Price!

- **The last word in Low Priced Centrifugal Pumps . . . Ball Bearings! . . . Remarkably High Efficiencies! . . . Extra Heavy, Extra Dependable Construction in every part!**
- **Use these American-Marsh Type R Pumps for practically any pumping job, handling any liquid. USE THEM TO SAVE MONEY IN BOTH FIRST AND OPERATING COSTS. Available in a wide range of sizes for any type of drive.**
- **Write for Bulletin 300. Better still, have our engineers submit a recommendation covering your requirements.**

AMERICAN STEAM PUMP COMPANY
BATTLE CREEK, MICHIGAN . . . Pumps and Pumps Only Since 1873



"DOUBLE-SEALED"
FOR DOUBLE LIFE

The bowls and runners are the heart of your pump. All the other machinery is simply to make these parts work. Peerless Bowls are "Double-Sealed" against sand-cutting and abrasive wear. Result, high maintained operating efficiency, low power cost, minimum repair expense.

Write for Bulletin P-132 telling the whole remarkable story of Peerless "Double-Seal."

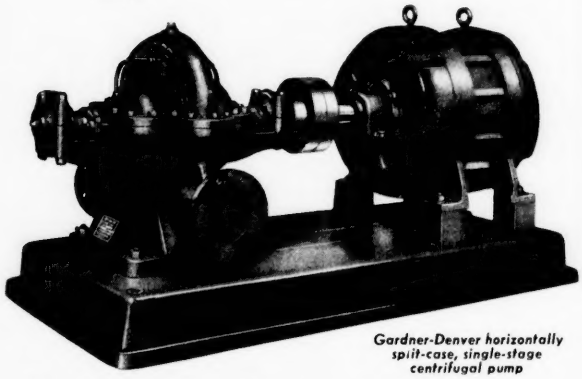
PEERLESS PUMPS
FOOD MACHINERY CORPORATION
1900 *East 67th Street, Los Angeles, California*
300 *Walnut Avenue, Massillon, Ohio*

You'll Save *Something* with Any New Pump— But You'll Save *Most* with a GARDNER-DENVER!

Chances are, any new centrifugal pump will effect some saving in your power cost. But if you want to make your saving greater—if you want *every* feature that contributes to long-life, low-cost operation—you'll insist on having a Gardner-Denver centrifugal.

In a Gardner-Denver centrifugal, you get a totally enclosed hydraulically balanced bronze impeller . . . heavy-duty ball bearings . . . dust- and splash-proof bearing housings . . . a casing scientifically designed for smoother flow. You get *sustained* high efficiency. No wonder Gardner-Denver centrifugal pumps usually pay for themselves and their motors during the first year of operation!

Write for our Bulletins—they tell the whole story.



Gardner-Denver horizontally split-case, single-stage centrifugal pump

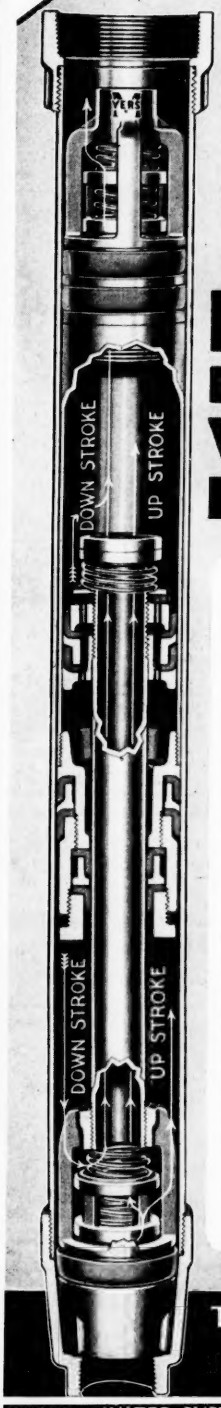
GARDNER-DENVER CO., Quincy, Illinois

SINCE 1859

Atlanta, Ga. Charleston, W. Va. Houston, Texas
Birmingham, Ala. Knoxville, Tenn. Dallas, Texas

GARDNER-DENVER

MORE WATER *with* MYERS DOUBLE ACTING WORKING BARRELS



Frequently, when there is a deep well power pump installation to be made, the question of greater volume than can be pumped by an ordinary single acting cylinder bobs up.

Never permit this problem to disturb you for nine times out of ten it can be quickly solved to the entire satisfaction of all concerned by the use of a Myers Double Acting Precision Built Power Cylinder which will actually furnish more water at a lower cost than any similar device on the market.

Now built in both Brass and Brass Lined Styles with size range for almost any requirement, these cylinders with their mechanical perfection and care-free operation afford new standards of water service that will be appreciated by anyone who must go deep for his water supply.

Your inquiry will receive prompt attention.

THE F. E. MYERS & BRO. COMPANY
ASHLAND, OHIO.

PUMPS - WATER SYSTEMS - HAY TOOLS - DOOR HANGERS

Arkansas Prepares for Greater Industrial Expansion

(*Continued from page 43*)

"Immense quantities of agricultural products including cotton, cotton seed, corn, rice and fruits, are available for the manufacture of cellulose products, industrial alcohol and other derivatives.

"As to timber resources, the State is in a position to supply a heavy demand for pine, gum, oak and other species for the manufacture of wood products of many kinds, provided scientific methods of removal for sustained yield are practiced. Much has already been accomplished to this end.

"In the mineral group, there exists an abundance of cheap fuels in the form of oil, natural gas, bituminous and semianthracite coal. Unlimited amounts of limestone, dolomite, chalk, clay, glass sand, tripoli, slate, building stone, sand and gravel are also available. There are also substantial reserves of bauxite (aluminum ore), zinc, lead, barite, and phosphate.

"The development of hydroelectric power within the State has recently moved forward with the undertaking of the construction of the Blakely Mountain dam, and the contemplated construction of a dam at Wildcat Shoals on the White River in Arkansas. With the completion of these two dams, the total hydroelectric horse-power developed will approximate 42 per cent of 527,800 horse-power estimated available.

"There are, of course, certain drawbacks to the development of some types of industries within Arkansas, which affect basic costs and the security of profits, just as there are in any State. An Industrial Commission, however, as contemplated by Governor Bailey, can doubtless bring about the removal or substantial elimination of any serious barriers to industrial growth in Arkansas if it faces the problems squarely and secures the necessary legislative support. The full cooperation of established State and Municipal agencies with the objectives of the Commission is assured. These include the State Planning Board, the State Forestry Commission, the State Geological Survey, the Agricultural Extension Service of the University of Arkansas, the State Chamber of Commerce, and many local chambers."

MORE than 22,500,000 people live within 250 miles of the State of Arkansas and within 500 miles live 55,000,000 people, so there can be no doubt but that we have a wide market within a day's auto travel. Arkansas has been called the "Wonder State" on account of the great variety of natural resources and with markets close by, almost unexhaustible resources, a long working and growing season and good climatic conditions, there is no question but that Arkansas, within the next few years, will probably see a rapid development under the leadership of Governor Carl E. Bailey, who has announced that the industrial development of Arkansas will occupy first place in his program. Arkansas has been hiding her light under a bushel, but with the present trend of capital from bonds and liens, to common stocks and equities, the natural resources of Arkansas promise opportunities for sound investment. One visit to the State impresses every visitor with the vast resources and possibilities.

WITH industrial and general building projects in 16 Southern states reaching an all time record high in 1936 of $939,264,000 there can be no doubt but that the South is entering the greatest era of prosperity ever known, and with the energetic business administration which we are promised by Governor Bailey, a friendly and inviting attitude by Arkansas toward industry and capital, and the cooperation of all existing agencies in Arkansas, we can confidently look forward to a possible greater development in Arkansas during the next ten years.

1937 Natchez Pilgrimage

Announcing the sixth annual showing of ante-bellum houses, March 14 through March 21, The Pilgrimage Garden Club of Natchez, Miss., has issued a cordial invitation to visit the century-old mansions in the area on the dates mentioned, when Natchez "again will revive the days of the Old South." A complete tour of the houses under the auspices of The Pilgrimage Garden Club requires two days, with two tours each day. Those attending the Natchez Pilgrimage may also attend the New Orleans Fiesta—March 10 through March 17—and the Mobile Azalea Trail, which is usually at the height of its beauty at that time. Mrs. Hubert Barnum is president of The Pilgrimage Garden Club of Natchez, and Mrs. Balfour Miller is director of the Pilgrimage.

SEWER PIPE
CULVERT PIPE
DRAIN TILE
WALL COPING
METER BOXES

LEE CLAY PRODUCTS CO. LEE CLEARFIELD, KY.

FLUE LINING
SEPTIC TANKS
FIRE BRICK
GRATE BACKS
FIRE CLAY

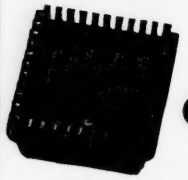
We solicit your inquiries
LEE CLAY PRODUCTS COMPANY
CLEARFIELD, Rowan County KENTUCKY

WILLIAMS
• BUCKETS •
Power-Arm, Multiple-Rope and Dragline Types. Write for bulletins.
THE WELLMAN ENGINEERING CO.
7003 Central Ave. Cleveland, Ohio

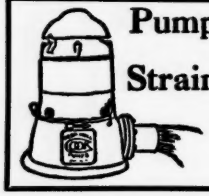
GALVANIZING
(HOT DIPPED PROCESS)
The largest job galvanizing plant in the United States
GALVANIZED PRODUCTS FURNISHED
Joseph P. Cattie & Bros., Philadelphia, Pa.

SAND—GRAVEL—BRICK
FILTER GRAVEL
Washed Sand and Gravel for Concrete
Roads and Buildings
Filter Gravel, all sizes—Building Bricks
FRIEND & CO., INC. River St., Petersburg, Va.

EARLE GEARS
Cut Spur, Bevel, Herringbone, and Worm Gears
All sizes. Every description. Operating Machinery for Bridges, etc. "Lea Simplex" Cold Metal Saws.
The Earle Gear & Machine Co.
4719 Stenton Ave., Philadelphia, Pa.
110 State St., Boston, Mass.
149 Broadway, New York City



A "GADGET"
Let Us Quote On Yours!
CASTINGS
Iron, Brass, Bronze, Aluminum.
Machine and Pattern Work.
Makers of Precise, Clean Castings.
The **RICHMOND** FOUNDRY & MANUFACTURING CO. *Inc.*
RICHMOND, VIRGINIA.
"A Dependable Source of Supply"



Pumps—Deep-Well Plunger and Turbine
Strainers—and other well supplies
WATER PRESSURE SYSTEMS
A. D. COOK, INC.
Lawrenceburg, Indiana